

ONCONEXT TISSUE

RICERCA DI MUTAZIONI SOMATICHE HOTSPOT IN TUMORI SOLIDI

Il tumore e mutazioni somatiche.

I tumori sono patologie dovute ad alterazioni genetiche in cui la componente cellulare non risponde correttamente ai fattori che normalmente ne controllano la proliferazione. Una singola alterazione genetica non è in genere sufficiente a provocare il cancro. Infatti, i tumori sono processi multifasici: la progressione neoplastica consiste in una serie successiva di alterazioni genetiche che si accumulano.

La maggior parte dei tumori è correlata in letteratura alla presenza di mutazioni geniche somatiche^{1,2}. Tali mutazioni somatiche si sviluppano in modo spontaneo potenzialmente in qualsiasi tipo di cellula. Queste alterazioni del DNA possono derivare da errori casuali durante la replicazione, o dall'esposizione a fattori ambientali mutageni accidentali, professionali, o dipendenti dallo stile di vita. A differenza delle varianti patogenetiche ereditabili (germline mutations) che sono presenti nella linea germinale, le mutazioni somatiche non sono trasmissibili alla progenie.

Migliaia di mutazioni somatiche, che possono influenzare l'insorgenza di un tumore, lo sviluppo di metastasi o la risposta/resistenza a un trattamento, sono state catalogate su database internazionali. L'identificazione e la comprensione di queste alterazioni del DNA nel tumore possono essere cruciali nella diagnosi del cancro e nella pianificazione del suo trattamento, dal monitoraggio della risposta alla terapia all'identificazione precoce della ripresa. Inoltre, durante la progressione di un tumore, il tessuto continua a sviluppare ulteriori nuove mutazioni e queste ultime possono influenzare la risposta agli agenti terapeutici innescando meccanismi di resistenza.

La diagnosi del cancro, richiede una serie di analisi, tra le quali la biopsia tissutale costituisce il gold standard. La strategia terapeutica contro il cancro, e il controllo della risposta terapeutica, sono convenzionalmente decisi attraverso un approccio analitico che associa la diagnostica per immagini alla caratterizzazione patologica della biopsia del tessuto.

Utilità clinica dell'analisi del ctDNA nel monitoraggio della malattia tumorale e nella medicina di precisione In letteratura è dimostrato che mutazioni somatiche in un determinato gruppo di geni sono spesso alla base dello sviluppo di diversi tipi di tumore (Tabella 2)¹. Questi geni includono BRAF, la famiglia del gene RAS, EGFR, PIK3CA, FOXL2, e TP53. Mutazioni somatiche nel gene BRAF sono comunemente associate al melanoma, al linfoma non-Hodgkin, al tumore del colon-retto, al carcinoma papillare della tiroide, al carcinoma del polmone non a piccole cellule, e all'adenocarcinoma del polmone, mentre mutazioni somatiche nel gene EGFR sono stati osservate nel tumore del polmone¹¹. Mutazioni nel gene PIK3CA sono più frequenti nel tumore del seno e del colon-retto¹². Mutazioni sul gene FOXL2 sono state osservate nei tumori della granulosa, e mutazioni del gene TP53 vengono rilevate in quasi tutti tipi di cancro⁹.

L'osservazione di mutazioni hotspot può aiutare l'oncologo a consigliare un piano di trattamento personalizzato durante il quale eseguire il monitoraggio della risposta della malattia e il potenziale sviluppo di resistenza al farmaco. Per esempio, nei pazienti affetti da melanoma metastatico, se presente una specifica mutazione somatica sul gene BRAF (V600E), è spesso indicato il trattamento con inibitori di BRAF come dabrafenib, trametinib e vemurafenib, singolarmente o in combinazione¹³. Inoltre, gli inibitori di EGFR cetuximab e panitumumab si sono rivelati più utili nei pazienti con carcinoma polmonare in cui non sono presenti mutazioni sul gene KRAS (wild type) e in cui EGFR è espresso. Diversi studi clinici di rilievo hanno dimostrato che gli inibitori della tirosin-chinasi di EGFR (TKIs), afatinib e erlotinib, sono utili solo per il trattamento di pazienti i cui tumori presentano mutazioni attivanti nel dominio tirosin-chinasi del gene EGFR¹⁴.

Table 2 – Frequenza delle mutazioni somatiche per gene e tipo di tumore

Tipo di tumore	Gene	Frequenza delle mutazioni somatiche
Mammella	PIK3CA	26%
	TP53	23%
Colon-retto	BRAF	11%
	KRAS	36%
	NRAS	5%
	PIK3CA	14%
	TP53	45%
Endometrio	KRAS	14%
	PIK3CA	21%
	TP53	17%
Granulosa cell	FOXL2	97%
Head & Neck	EGFR	2%
	PIK3CA	7%
	TP53	38%
Tumore Renale	TP53	5%
Polmone	BRAF	1-4%
		1% in Non Small Cell Lung Cancer (NSCLC)
	EGFR	29%
	KRAS	17%
	TP53	34%
Melanoma	BRAF	45%
	NRAS	18%
	TP53	12%
Tumore ovarico	BRAF	7%
	FOXL2	18%
	KRAS	12%
	PIK3CA	9%
	TP53	46%
Pancreas	BRAF	2%
	KRAS	57%
	PIK3CA	2%
	TP53	36%
Prostata	BRAF	1%
	EGFR	3%
	KRAS	4%
	PIK3CA	2%
	TP53	14%
Tumore testicolare	BRAF	2%
	FOXL2	2%
	KRAS	4%
	NRAS	2%
	TP53	5%
Tiroide	BRAF	41%
	GNAS	3%
	KRAS	2%
	NRAS	7%
	PIK3CA	3%
	TP53	6%

 References: COSMIC database (<http://cancer.sanger.ac.uk/cosmic>)¹⁹⁻²⁵.

Il test OncoNext Tissue™.

OncoNext Tissue™ è un test genetico finalizzato al rilevamento di mutazioni somatiche in tumori solidi. L'esame impiega le più recenti innovazioni tecnologiche. Grazie alla tecnologia di sequenziamento Next Generation Sequencing (NGS) oggi è possibile individuare in modo estremamente sensibile la presenza di mutazioni somatiche anche da esigue quantità di tessuto tumorale.

Il rilevamento contemporaneo di diverse mutazioni permette di comprendere al meglio il profilo genomico del tumore e adottare il trattamento più idoneo.

Come viene effettuato il test OncoNext Tissue™.

Il test si esegue su un campione di tessuto, fresco o incluso in paraffina. Il DNA viene isolato ed **amplificato mediante tecnica PCR**. Successivamente, attraverso un processo tecnologico avanzato di **sequenziamento del DNA** mediante l'impiego di tecniche di **Next Generation Sequencing (NGS)**, si sequenziano ad elevata profondità di lettura le regioni geniche elencate in Tabella 3. Le sequenze geniche ottenute vengono successivamente analizzate attraverso un'**avanzata analisi bioinformatica**, per individuare eventuali mutazioni somatiche nei geni in esame. Le mutazioni vengono interrogate mediante il **database COSMIC (Catalogue Of Somatic Mutation In Cancer)** capace di associare le mutazioni patologiche utilizzando i dati presenti nelle pubblicazioni scientifiche.

Indicazioni per il test OncoNext Tissue™.

Il test **OncoNext Tissue™** è stato progettato per pazienti, ai quali è già stato diagnosticato un tumore, allo scopo di:

- Fornire un **profiling del tumore** per la corretta applicazione della medicina di precisione. Il test **OncoNext Tissue™** Monitor può fornire all'oncologo informazioni utili a improntare un piano di trattamento personalizzato;
- Fornire informazioni prognostiche;
- Essere di **supporto per l'inserimento di un paziente in un Clinical Trial**: si tratta di una funzione aggiuntiva del test **OncoNext Tissue™**, per profilare correttamente il paziente e la sua malattia allo scopo di individuare un eventuale studio clinico in corso per cui tale paziente rientra nei criteri di eleggibilità.

Regioni geniche investigate.

Il test **OncoNext Tissue™** è stato progettato per il rilevamento di mutazioni somatiche hotspot in **50 geni** coinvolti in diversi tumori (tabella 3).

La selezione dei geni è stata eseguita a partire dal consenso scientifico attribuito ai geni inseriti nel pannello da organizzazioni come il National Comprehensive Cancer Network (NCCN)⁵⁹ e la Società Europea di Oncologia Medica (ESMO)⁶⁰. Il pannello comprende geni, regioni geniche incluse le varianti a singolo nucleotide (SNV), e inserzioni/delezioni (indels) che si sono dimostrate utili nello studio molecolare del tessuto tumorale.

Tabella 3: Geni investigati

AKT1	ERBB2	GNA11	MET	RET
ALK	ERBB3	GNAQ	MLH1	ROS1
APC	ERBB4	GNAS	MPL	SF3B1
AR	ESR1	HNF1A	NOTCH1	SMAD4
ATM	EZH2	HRAS	NRAS	SMARCB1
BRAF	FBXW7	IDH1	PDGFRA	SMO
CDH1	FGFR1	KDR	PIK3CA	SRC
CDKN2A	FGFR2	KIT	PTEN	STK11
CTNNB1	FGFR3	KRAS	PTPN11	TP53
EGFR	FOXL2	MAP2K1	RB1	VHL

Risultati ottenibili con il test OncoNext Tissue™.

Il test **OncoNext Tissue™** fornisce informazioni relative alla assenza o alla presenza nel campione analizzato di ciascuna delle mutazioni hotspot elencate in tabella 4.

• **Risultato "POSITIVO" – Presenza di una o più mutazioni:** indica che il test ha rilevato, nel DNA estratto dal campione ematico, una o più mutazioni somatiche a livello di uno (o più) geni. Le mutazioni riscontrabili tramite il test **OncoNext Tissue™** possono rientrare nelle seguenti categorie prognostiche:

- con significato patologico noto;
- **con significato benigno** in quanto sono riscontrabili in individui normali e sono prive di significato patologico;
- **con significato incerto** in quanto non ancora note o caratterizzate dalla comunità medico-scientifica. In questo caso possono essere necessari ulteriori indagini per chiarire il significato della variante.

L'identificazione di tale/i mutazione/i può avere diverse implicazioni, in relazione alla/e variante/i rilevata/e. Il nostro genetista, in sede di consulenza genetica, spiegherà in maniera dettagliata il significato del risultato del test, indirizzando il paziente ad una successiva consulenza con lo specialista oncologo.

• **Risultato "NEGATIVO" - Assenza di mutazioni:** indica che il test non ha rilevato, nel DNA estratto dal campione ematico, nessuna delle mutazioni somatiche ricercate.

• Occasionalmente, il test potrebbe produrre un **risultato non ottimale** o **non conclusivo**, perché il campione non soddisfa i requisiti minimi di qualità necessari per poter considerare il risultato ottenuto ottimale e, quindi, poter procedere alla relativa emissione del referto.

L'interpretazione del risultato viene personalizzata sulla base della storia clinica del paziente e, opzionalmente, può essere fornita un'indicazione sulla possibilità di inclusione di un paziente in un trial clinico sulla base dei risultati del test **OncoNext Tissue™**.

Accuratezza del test.

Le tecniche attuali di sequenziamento del DNA producono risultati con un'accuratezza superiore al 99% (sensibilità 99%; specificità 99.9%). Benché questo test sia molto accurato bisogna sempre considerare i limiti dell'esame, di seguito descritti.

Limiti del test OncoNext Tissue™.

• Il test **OncoNext Tissue™** analizza solo le mutazioni più frequenti dei geni investigati. In caso di tumori che, al momento del test, non abbiano sviluppato le mutazioni specifiche ricercate, queste ultime non saranno rilevate. E' quindi possibile che mutazioni in geni non testati da **OncoNext Tissue™** possano essere causa di malattia del paziente.

• L'esame non è in grado di evidenziare:

- mutazioni localizzate nelle regioni geniche non specificamente investigate;
- delezioni, inversioni o duplicazioni maggiori di 25 bp.

• Un risultato **"NEGATIVO" - Assenza di mutazioni** per i geni investigati non esclude la possibilità che siano presenti mutazioni localizzate in regione del genoma non investigate dall'esame.

• Un risultato positivo deve essere interpretato nel contesto della storia clinica del paziente e correlato allo stadio della malattia, ai risultati di imaging, ai dettagli terapeutici, e ad altri dati di laboratorio.

• In alcuni casi, il risultato di un'analisi genomica può rivelare una variante o mutazione del DNA con un significato clinico non certo o determinabile in base alle attuali conoscenze medico-scientifiche.

• L'interpretazione delle varianti genetiche si basa sulle più recenti conoscenze disponibili al momento dell'analisi. Tale interpretazione potrebbe cambiare in futuro con l'acquisizione di nuove

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informazioni scientifiche e mediche sulla struttura del genoma ed influire sulla valutazione stessa delle varianti.

- Alcune di queste varianti potrebbero non essere ancora state identificate o validate dalla comunità scientifica e quindi non essere riportate come patogenetiche al momento dell'analisi.
- Limite intrinseco della metodologia NGS utilizzata è la mancanza di uniformità di coverage per ciascuna regione genica analizzata. Tale limite si traduce nella possibilità, insita nelle metodiche NGS, che specifiche mutazioni dei geni selezionati potrebbero non essere state rilevate dal test.
- Mutazioni somatiche non incluse nell'esame non saranno rilevate.
- Il test **OncoNext Tissue™** non è finalizzato all'individuazione della predisposizione ereditaria allo sviluppo dei tumori, ma rileva solo le mutazioni somatiche.

Target coverage.

Si intende per **Target Coverage**, il numero medio di letture (reads) ottenute dal sequenziamento per ciascuna base nucleotidica costituente il gene. In generale, più è profonda la copertura di una regione più sensibile e affidabile è l'analisi. Per le varianti analizzate è necessaria una copertura di **8.000x** per il rilevamento di mutazioni di frequenza fino all'**1%**. I requisiti interni di controllo di qualità (QC) per il test **OncoNext Tissue™** impongono una **copertura maggiore di 8.000x** su più del 99% delle basi target previste per l'analisi.

Frequenza dell'allele mutato (MAF).

La frequenza dell'allele mutato è la frequenza identificata nel campione riportata per le diverse mutazioni (sostituzioni, inserzioni e delezioni).

Disclaimer.

I dati presentati nella relazione tecnica e nei referti sono destinati all'uso esclusivo di personale sanitario qualificato. Ogni diagnosi, consulenza, o prescrizione di trattamento in relazione ai dati contenuti nella presente relazione tecnica, o nei referti, deve essere eseguita da un operatore sanitario qualificato che tenga conto della storia clinica del singolo paziente, compresi gli esiti dei altri metodi d'analisi tradizionali (es. biopsia tumorale dei tessuti e tecniche di imaging). Le informazioni contenute nei referti e nella presente relazione tecnica sono riferibili alla data in cui gli stessi sono stati emessi; si consiglia all'operatore sanitario che prende in carico il paziente di rivalutare in un eventuale futuro la situazione emersa secondo la più recente letteratura disponibile.

Tabella 4: Principali mutazioni ricercate nel test **OncoNext Tissue™ 50 geni**

Gene	Accession number	COSMIC_ID	CDS_mut_syntax	AA_mut_syntax
AKT1	ENST00000349310	33765	c.49G>A	p.E17K
AKT1	ENST00000349310	36918	c.145G>A	p.E49K
AKT1	ENST00000349310	41225	c.47-1G>T	p.?
AKT1	ENST00000349310	48226	c.103T>C	p.F35L
AKT1	NM_005163	NOCOSMIC173	c.517G>C	p.G173R
AKT1	NM_005163	NOCOSMIC179	c.536A>T	p.K179M
ALK	NM_004304	28054	c.3520T>G	p.F1174V
ALK	NM_004304	28055	c.3522C>A	p.F1174L
ALK	NM_004304	28056	c.3824G>A	p.R1275Q
ALK	NM_004304	28057	c.3520T>C	p.F1174L
ALK	NM_004304	28059	c.3521T>G	p.F1174C
ALK	NM_004304	28061	c.3522C>G	p.F1174L
ALK	NM_004304	28491	c.3520T>A	p.F1174I
ALK	NM_004304	99137	c.3586C>A	p.L1196M
APC	NM_000038	13113	c.3927_3931delAAAGA	p.E1309fs*4
APC	NM_000038	13121	c.4099C>T	p.Q1367*

APC	NM_000038	13123	c.4729G>T	p.E1577*
APC	NM_000038	13125	c.3340C>T	p.R1114*
APC	NM_000038	13127	c.4348C>T	p.R1450*
APC	NM_000038	13727	c.3922A>T	p.K1308*
APC	NM_000038	13728	c.3907C>T	p.Q1303*
APC	NM_000038	13864	c.4393_4394delAG	p.S1465fs*3
APC	NM_000038	13872	c.3286C>T	p.Q1096*
APC	NM_000038	13879	c.4639G>T	p.E1547*
APC	NM_000038	181848	c.4127_4128delAT	p.Y1376fs*9
APC	NM_000038	18561	c.4666_4667insA	p.T1556fs*3
APC	NM_000038	18576	c.4666delA	p.T1556fs*9
APC	NM_000038	18698	c.4126_4127delTA	p.Y1376fs*9
APC	NM_000038	18699	c.4461_4462insT	p.L1488fs*26
APC	NM_000038	18700	c.3956delC	p.P1319fs*2
APC	NM_000038	18701	c.3926_3930delAAAAG	p.E1309fs*4
APC	NM_000038	18702	c.3964G>T	p.E1322*
APC	NM_000038	18704	c.4312delA	p.T1438fs*35
APC	NM_000038	18719	c.3923_3924insA	p.E1309fs*6
APC	NM_000038	18729	c.4405C>T	p.Q1469*
APC	NM_000038	18734	c.4662_4663insA	p.T1556fs*3
APC	NM_000038	18735	c.3916G>A	p.E1306K
APC	NM_000038	18737	c.4120G>A	p.E1374K
APC	NM_000038	18738	c.4495G>A	p.G1499R
APC	NM_000038	18755	c.3928_3929delAA	p.K1310fs*4
APC	NM_000038	18758	c.4108A>T	p.K1370*
APC	NM_000038	18759	c.4033G>T	p.E1345*
APC	NM_000038	18760	c.3916G>T	p.E1306*
APC	NM_000038	18763	c.4065_4066delTT	p.S1356fs*18
APC	NM_000038	18764	c.3921_3925delAAAAG	p.E1309fs*4
APC	NM_000038	18765	c.4060_4064delTTTC	p.S1355fs*18
APC	NM_000038	18767	c.3920_3921delTA	p.I1307fs*7
APC	NM_000038	18775	c.3925G>T	p.E1309*
APC	NM_000038	18777	c.3944C>A	p.S1315*
APC	NM_000038	18779	c.4067C>G	p.S1356*
APC	NM_000038	18783	c.4316delC	p.P1439fs*34
APC	NM_000038	18785	c.4469delA	p.H1490fs*17
APC	NM_000038	18786	c.4476delC	p.T1493fs*14
APC	NM_000038	18796	c.3935delG	p.G1312fs*9
APC	NM_000038	18804	c.3943_3944insA	p.S1315fs*3
APC	NM_000038	18809	c.3920delT	p.I1307fs*14
APC	NM_000038	18817	c.3934G>T	p.G1312*
APC	NM_000038	18823	c.4328delC	p.P1443fs*30
APC	NM_000038	18825	c.4364delA	p.N1455fs*18
APC	NM_000038	18834	c.4135G>T	p.E1379*
APC	NM_000038	18836	c.4285C>T	p.Q1429*
APC	NM_000038	18838	c.4391_4394delAGAG	p.E1464fs*8
APC	NM_000038	18852	c.2626C>T	p.R876*
APC	NM_000038	18855	c.3898_3908del11	p.T1301fs*10
APC	NM_000038	18856	c.3930_3933delGATT	p.I1311fs*9
APC	NM_000038	18861	c.4128T>A	p.Y1376*
APC	NM_000038	18862	c.4132C>T	p.Q1378*
APC	NM_000038	18866	c.4668_4669insA	p.I1557fs*2
APC	NM_000038	18869	c.4308delT	p.S1436fs*37
APC	NM_000038	18873	c.4385_4386delAG	p.S1465fs*3

APC	NM_000038	18883	c.4390G>T	p.E1464*
APC	NM_000038	18885	c.4495G>T	p.G1499*
APC	NM_000038	18910	c.4126_4127insT	p.Y1376fs*10
APC	NM_000038	18927	c.4329T>A	p.P1443P
APC	NM_000038	18931	c.4392_4393delGA	p.S1465fs*3
APC	NM_000038	18935	c.3870_3871insCAGACGA	p.Q1294fs*9
APC	NM_000038	18937	c.3904_3905insT	p.Q1303fs*12
APC	NM_000038	18938	c.4040delC	p.R1348fs*67
APC	NM_000038	18942	c.3928A>T	p.K1310*
APC	NM_000038	18949	c.3942delG	p.R1314fs*7
APC	NM_000038	18950	c.3920_3924delTAAAA	p.I1307fs*6
APC	NM_000038	18960	c.3880C>T	p.Q1294*
APC	NM_000038	18961	c.3883G>T	p.E1295*
APC	NM_000038	18965	c.4477_4478insA	p.T1493fs*21
APC	NM_000038	18978	c.4667_4668insC	p.I1557fs*2
APC	NM_000038	18986	c.4066_4079del14	p.G1357fs*13
APC	NM_000038	18990	c.4122_4123delAC	p.H1375fs*10
APC	NM_000038	18997	c.4372delC	p.P1458fs*15
APC	NM_000038	18999	c.4461delT	p.L1488fs*19
APC	NM_000038	19005	c.3893_3894insTGCTAATA	p.T1301fs*7
APC	NM_000038	19020	c.4665_4666insA	p.T1556fs*3
APC	NM_000038	19021	c.4330C>T	p.Q1444*
APC	NM_000038	19033	c.4110_4111delAA	p.P1372fs*2
APC	NM_000038	19047	c.4050delA	p.A1351fs*64
APC	NM_000038	19048	c.4057G>T	p.E1353*
APC	NM_000038	19049	c.4326T>A	p.P1442P
APC	NM_000038	19052	c.4290delC	p.M1431fs*42
APC	NM_000038	19053	c.4314_4315delAC	p.P1439fs*15
APC	NM_000038	19054	c.4473delT	p.F1491fs*16
APC	NM_000038	19055	c.4537G>T	p.E1513*
APC	NM_000038	19062	c.2606delA	p.N869fs*47
APC	NM_000038	19072	c.3871C>T	p.Q1291*
APC	NM_000038	19084	c.4037C>A	p.S1346*
APC	NM_000038	19085	c.4120G>T	p.E1374*
APC	NM_000038	19093	c.4304delG	p.R1435fs*38
APC	NM_000038	19094	c.4332_4335delAACA	p.T1445fs*27
APC	NM_000038	19095	c.4351G>T	p.E1451*
APC	NM_000038	19098	c.4463delT	p.L1488fs*19
APC	NM_000038	19099	c.3949G>C	p.E1317Q
APC	NM_000038	19105	c.4466delT	p.L1489fs*18
APC	NM_000038	19119	c.4364_4365insA	p.N1455fs*2
APC	NM_000038	19127	c.4394_4395delGT	p.S1465fs*3
APC	NM_000038	19129	c.4339C>T	p.Q1447*
APC	NM_000038	19141	c.4393delA	p.S1465fs*8
APC	NM_000038	19145	c.3925_3929delGAAAA	p.E1309fs*4
APC	NM_000038	19148	c.4358delC	p.P1453fs*20
APC	NM_000038	19201	c.4384_4385delAA	p.K1462fs*6
APC	NM_000038	19203	c.3919_3920insA	p.I1307fs*8
APC	NM_000038	19218	c.3902C>G	p.T1301S
APC	NM_000038	19225	c.4468_4469delCA	p.H1490fs*23
APC	NM_000038	19230	c.2639T>C	p.I880T
APC	NM_000038	19236	c.4333delA	p.T1445fs*28
APC	NM_000038	19241	c.4067C>A	p.S1356*
APC	NM_000038	19253	c.3949G>T	p.E1317*

APC	NM_000038	19263	c.3922_3926delAAAGA	p.E1309fs*4
APC	NM_000038	19268	c.4132_4133delCA	p.Q1378fs*7
APC	NM_000038	19299	c.4473_4474insT	p.A1492fs*22
APC	NM_000038	19329	c.3359G>A	p.G1120E
APC	NM_000038	19330	c.2656C>T	p.Q886*
APC	NM_000038	19332	c.4391_4392delAG	p.S1465fs*3
APC	NM_000038	19340	c.4474delG	p.A1492fs*15
APC	NM_000038	19349	c.4479_4480delGG	p.E1494fs*19
APC	NM_000038	19478	c.4691T>G	p.L1564*
APC	NM_000038	19582	c.3944C>G	p.S1315*
APC	NM_000038	19594	c.4318delC	p.P1440fs*33
APC	NM_000038	19615	c.4462_4463insTA	p.L1489fs*19
APC	NM_000038	19616	c.4463T>G	p.L1488*
APC	NM_000038	19617	c.4464delA	p.L1488fs*19
APC	NM_000038	19626	c.4480delG	p.E1494fs*13
APC	NM_000038	19629	c.4489delC	p.P1497fs*10
APC	NM_000038	19652	c.4063T>C	p.S1355P
APC	NM_000038	19664	c.3919delA	p.I1307fs*1
APC	NM_000038	19667	c.4465_4466insAC	p.L1489fs*19
APC	NM_000038	19674	c.4483_4484insA	p.S1495fs*19
APC	NM_000038	19688	c.4386_4387delGA	p.S1465fs*3
APC	NM_000038	19694	c.4386_4389delGAGA	p.E1464fs*8
APC	NM_000038	19695	c.4660_4661insA	p.T1556fs*3
APC	NM_000038	19696	c.4117delC	p.P1373fs*42
APC	NM_000038	19701	c.4061_4062delTT	p.S1355fs*19
APC	NM_000038	19705	c.4303A>T	p.R1435*
APC	NM_000038	19714	c.4479delG	p.E1494fs*13
APC	NM_000038	19718	c.4660_4661insG	p.E1554fs*5
APC	NM_000038	210755	c.4343_4343delC	p.K1449fs*24
APC	NM_000038	23587	c.4097C>T	p.A1366V
APC	NM_000038	23598	c.4483delA	p.S1495fs*12
APC	NM_000038	24941	c.4477delA	p.T1493fs*14
APC	NM_000038	24946	c.4291delA	p.M1431fs*42
APC	NM_000038	24948	c.4394delG	p.S1465fs*8
APC	NM_000038	25815	c.4295_4296CA>AC	p.P1432H
APC	NM_000038	25826	c.4037C>G	p.S1346*
APC	NM_000038	25827	c.4048A>T	p.K1350*
APC	NM_000038	27993	c.4360A>G	p.K1454E
APC	NM_000038	29330	c.3897delT	p.N1300fs*5
APC	NM_000038	29331	c.4063delT	p.S1355fs*60
APC	NM_000038	30779	c.4381G>T	p.E1461*
APC	NM_000038	32201	c.3956delC	p.P1319fs*2
APC	NM_000038	32442	c.4473delT	p.F1491fs*16
APC	NM_000038	41607	c.4090_4091insA	p.S1364fs*11
APC	NM_000038	41608	c.4063_4064insT	p.S1355fs*20
APC	NM_000038	41613	c.3925_3926insA	p.I1311fs*4
APC	NM_000038	41614	c.4373_4374insC	p.T1459fs*3
APC	NM_000038	41616	c.4654G>T	p.E1552*
APC	NM_000038	41618	c.4463_4466delTATT	p.L1488fs*18
APC	NM_000038	41619	c.4118_4118delC	p.P1373fs*42
APC	NM_000038	41621	c.4665_4666delAA	p.K1555fs*3
APC	NM_000038	41622	c.4388_4391delGAGA	p.E1464fs*8
APC	NM_000038	41623	c.4081_4082delCC	p.P1361fs*13
APC	NM_000038	99778	c.4484G>T	p.S1495I

AR			c.2105T>A	L702H
AR			c.2226G>T	W742C
AR			c.2623C>T	H875Y
AR			c.2631C>A	F877L
AR			c.2632A>G	T878A
ATM	NM_000051	12791	c.7996A>G	p.T2666A
ATM	NM_000051	12792	c.5380C>T	p.L1794L
ATM	NM_000051	12793	c.2542G>C	p.E848Q
ATM	NM_000051	12951	c.7325A>C	p.Q2442P
ATM	NM_000051	20404	c.7328G>A	p.R2443Q
ATM	NM_000051	21323	c.1009C>T	p.R337C
ATM	NM_000051	21624	c.9139C>T	p.R3047*
ATM	NM_000051	21626	c.9023G>A	p.R3008H
ATM	NM_000051	21636	c.8084G>C	p.G2695A
ATM	NM_000051	21642	c.9022C>T	p.R3008C
ATM	NM_000051	21679	c.8663T>C	p.I2888T
ATM	NM_000051	21825	c.1229T>C	p.V410A
ATM	NM_000051	21826	c.2572T>C	p.F858L
ATM	NM_000051	21918	c.5224G>C	p.A1742P
ATM	NM_000051	21919	c.5041A>G	p.I1681V
ATM	NM_000051	21920	c.5044G>T	p.D1682Y
ATM	NM_000051	21922	c.5821G>C	p.V1941L
ATM	NM_000051	21924	c.1058_1059delGT	p.C353fs*5
ATM	NM_000051	21930	c.8839A>T	p.T2947S
ATM	NM_000051	21931	c.1009C>A	p.R337S
ATM	NM_000051	22481	c.8174A>T	p.D2725V
ATM	NM_000051	22485	c.8668C>G	p.L2890V
ATM	NM_000051	22499	c.1810C>T	p.P604S
ATM	NM_000051	22507	c.3925G>A	p.A1309T
BRAF	NM_004333	1111	c.1390G>C	p.G464R
BRAF	NM_004333	1112	c.1396G>C	p.G466R
BRAF	NM_004333	1113	c.1405_1407GGA>AGC	p.G469S
BRAF	NM_004333	1115	c.1746A>G	p.I582M
BRAF	NM_004333	1116	c.1749T>C	p.F583F
BRAF	NM_004333	1117	c.1752T>C	p.L584L
BRAF	NM_004333	1118	c.1758A>G	p.E586E
BRAF	NM_004333	1119	c.1776A>G	p.I592M
BRAF	NM_004333	1120	c.1774A>G	p.I592V
BRAF	NM_004333	1121	c.1782T>A	p.D594E
BRAF	NM_004333	1123	c.1784T>C	p.F595S
BRAF	NM_004333	1124	c.1791A>G	p.L597L
BRAF	NM_004333	1125	c.1790T>A	p.L597Q
BRAF	NM_004333	1126	c.1789_1790CT>TC	p.L597S
BRAF	NM_004333	1127	c.1797_1799AGT>GAG	p.V600R
BRAF	NM_004333	1128	c.1797_1797A>TACTACG	p.T599_V600insTT
BRAF	NM_004333	1130	c.1798G>A	p.V600M
BRAF	NM_004333	1132	c.1803A>C	p.K601N
BRAF	NM_004333	1133	c.1799_1801delTGA	p.V600_K601>E
BRAF	NM_004333	1134	c.1810T>G	p.W604G
BRAF	NM_004333	1135	c.1813_1814AG>TT	p.S605F
BRAF	NM_004333	1136	c.1814G>A	p.S605N
BRAF	NM_004333	1137	c.1817G>A	p.G606E
BRAF	NM_004333	1138	c.1823A>G	p.H608R
BRAF	NM_004333	144982	c.1797_1798insACA	p.T599_V600insT

BRAF	NM_004333	18443	c.1799T>C	p.V600A
BRAF	NM_004333	21492	c.1357C>A	p.P453T
BRAF	NM_004333	21542	c.1813A>G	p.S605G
BRAF	NM_004333	21549	c.1793C>T	p.A598V
BRAF	NM_004333	21609	c.1761C>A	p.D587E
BRAF	NM_004333	21612	c.1783T>C	p.F595L
BRAF	NM_004333	219798	c.1798G>C	p.V600L
BRAF	NM_004333	24642	c.1411G>T	p.V471F
BRAF	NM_004333	249889	c.1798_1799GT>CA	p.V600Q
BRAF	NM_004333	26506	c.1787G>A	p.G596D
BRAF	NM_004333	26625	c.1794_1795insGTT	p.A598_T599insV
BRAF	NM_004333	27639	c.1780G>A	p.D594N
BRAF	NM_004333	27912	c.1405_1407GGA>AGT	p.G469S
BRAF	NM_004333	28010	c.1750C>T	p.L584F
BRAF	NM_004333	30594	c.1801_1803delAAA	p.K601del
BRAF	NM_004333	30730	c.1796_1797insTAC	p.T599_V600insT
BRAF	NM_004333	33729	c.1807C>T	p.R603*
BRAF	NM_004333	33808	c.1798G>T	p.V600L
BRAF	NM_004333	447	c.1385G>T	p.R462I
BRAF	NM_004333	449	c.1391G>A	p.G464E
BRAF	NM_004333	450	c.1391G>T	p.G464V
BRAF	NM_004333	451	c.1397G>T	p.G466V
BRAF	NM_004333	452	c.1397G>C	p.G466A
BRAF	NM_004333	453	c.1397G>A	p.G466E
BRAF	NM_004333	455	c.1405G>C	p.G469R
BRAF	NM_004333	457	c.1405G>A	p.G469R
BRAF	NM_004333	458	c.1405_1406GG>TC	p.G469S
BRAF	NM_004333	459	c.1406G>T	p.G469V
BRAF	NM_004333	460	c.1406G>C	p.G469A
BRAF	NM_004333	461	c.1406G>A	p.G469E
BRAF	NM_004333	462	c.1742A>G	p.N581S
BRAF	NM_004333	463	c.1756G>A	p.E586K
BRAF	NM_004333	464	c.1760A>C	p.D587A
BRAF	NM_004333	465	c.1761C>G	p.D587E
BRAF	NM_004333	466	c.1781A>T	p.D594V
BRAF	NM_004333	467	c.1781A>G	p.D594G
BRAF	NM_004333	468	c.1785T>G	p.F595L
BRAF	NM_004333	469	c.1786G>C	p.G596R
BRAF	NM_004333	470	c.1789C>G	p.L597V
BRAF	NM_004333	471	c.1790T>G	p.L597R
BRAF	NM_004333	472	c.1796C>T	p.T599I
BRAF	NM_004333	473	c.1798_1799GT>AA	p.V600K
BRAF	NM_004333	474	c.1798_1799GT>AG	p.V600R
BRAF	NM_004333	475	c.1799_1800TG>AA	p.V600E
BRAF	NM_004333	476	c.1799T>A	p.V600E
BRAF	NM_004333	477	c.1799_1800TG>AT	p.V600D
BRAF	NM_004333	478	c.1801A>G	p.K601E
BRAF	NM_004333	53198	c.1785T>A	p.F595L
BRAF	NM_004333	6137	c.1799T>G	p.V600G
BRAF	NM_004333	6262	c.1330C>T	p.R444W
BRAF	NM_004333	6265	c.1803A>T	p.K601N
BRAF	NM_004333	6267	c.1808_1810delGAT	p.W604del
CDH1	NM_004360.2	19747	c.1057G>T	p.E353*
CDH1	NM_004360.2	19748	c.1108G>C	p.D370H

CDH1	NM_004360.2	19750	c.1204G>A	p.D402N
CDH1	NM_004360.2	19751	c.1027delC	p.L343fs*13
CDH1	NM_004360.2	19753	c.1009-1G>A	p.?
CDH1	NM_004360.2	19761	c.1196_1199delCTGA	p.T399fs*17
CDH1	NM_004360.2	28934	c.240_241insGGTG	p.V82fs*13
CDKN2A	NM_000077	12468	c.236C>T	p.T79I
CDKN2A	NM_000077	12469	c.244G>A	p.V82M
CDKN2A	NM_000077	12473	c.172C>T	p.R58*
CDKN2A	NM_000077	12475	c.238C>T	p.R80*
CDKN2A	NM_000077	12476	c.341C>T	p.P114L
CDKN2A	NM_000077	12479	c.358G>T	p.E120*
CDKN2A	NM_000077	12480	c.239G>A	p.R80Q
CDKN2A	NM_000077	12481	c.329G>A	p.W110*
CDKN2A	NM_000077	12484	c.322G>A	p.D108N
CDKN2A	NM_000077	12490	c.224C>T	p.P75L
CDKN2A	NM_000077	12491	c.318G>A	p.V106V
CDKN2A	NM_000077	12493	c.303G>A	p.G101G
CDKN2A	NM_000077	12494	c.248A>C	p.H83P
CDKN2A	NM_000077	12501	c.365G>A	p.G122D
CDKN2A	NM_000077	12502	c.305C>A	p.A102E
CDKN2A	NM_000077	12503	c.334C>G	p.R112G
CDKN2A	NM_000077	12504	c.247C>T	p.H83Y
CDKN2A	NM_000077	12509	c.220G>T	p.D74Y
CDKN2A	NM_000077	12511	c.242C>A	p.P81H
CDKN2A	NM_000077	12513	c.298G>T	p.A100S
CDKN2A	NM_000077	12518	c.233_234delTC	p.L78fs*41
CDKN2A	NM_000077	12537	c.151-1G>T	p.?
CDKN2A	NM_000077	12539	c.151-2A>C	p.?
CDKN2A	NM_000077	12544	c.243_244insT	p.P81fs*38
CDKN2A	NM_000077	12547	c.330G>A	p.W110*
CDKN2A	NM_000077	12731	c.171_172CC>TT	p.R58*
CDKN2A	NM_000077	12739	c.222C>T	p.D74D
CDKN2A	NM_000077	12741	c.392G>A	p.R131H
CDKN2A	NM_000077	12746	c.199G>A	p.G67S
CDKN2A	NM_000077	12748	c.382C>T	p.R128W
CDKN2A	NM_000077	12749	c.204G>A	p.A68A
CDKN2A	NM_000077	12758	c.192G>A	p.L64L
CDKN2A	NM_000077	13221	c.387C>G	p.Y129*
CDKN2A	NM_000077	13222	c.151-2A>T	p.?
CDKN2A	NM_000077	13223	c.151-1G>A	p.?
CDKN2A	NM_000077	13224	c.242C>T	p.P81L
CDKN2A	NM_000077	13227	c.343G>T	p.V115L
CDKN2A	NM_000077	13252	c.170C>T	p.A57V
CDKN2A	NM_000077	13254	c.313delG	p.D105fs*41
CDKN2A	NM_000077	13274	c.251A>G	p.D84G
CDKN2A	NM_000077	13276	c.152T>C	p.V51A
CDKN2A	NM_000077	13280	c.200G>T	p.G67V
CDKN2A	NM_000077	13281	c.205G>T	p.E69*
CDKN2A	NM_000077	13289	c.231_232delTC	p.L78fs*41
CDKN2A	NM_000077	13294	c.376G>T	p.V126F
CDKN2A	NM_000077	13295	c.251A>T	p.D84V
CDKN2A	NM_000077	13296	c.358G>A	p.E120K
CDKN2A	NM_000077	13297	c.249_250insTT	p.D84fs*63
CDKN2A	NM_000077	13298	c.394G>C	p.A132P

CDKN2A	NM_000077	13299	c.250G>T	p.D84Y
CDKN2A	NM_000077	13300	c.355G>T	p.E119*
CDKN2A	NM_000077	13436	c.155T>A	p.M52K
CDKN2A	NM_000077	13440	c.203C>T	p.A68V
CDKN2A	NM_000077	13463	c.369T>A	p.H123Q
CDKN2A	NM_000077	13474	c.220G>A	p.D74N
CDKN2A	NM_000077	13486	c.181G>T	p.E61*
CDKN2A	NM_000077	13488	c.250G>A	p.D84N
CDKN2A	NM_000077	13489	c.322G>T	p.D108Y
CDKN2A	NM_000077	13491	c.232_233delCT	p.L78fs*41
CDKN2A	NM_000077	13493	c.174_189del16	p.V59fs*82
CDKN2A	NM_000077	13494	c.160_173del14	p.M54fs*61
CDKN2A	NM_000077	13496	c.151G>A	p.V51I
CDKN2A	NM_000077	13504	c.188T>C	p.L63P
CDKN2A	NM_000077	13505	c.316G>A	p.V106M
CDKN2A	NM_000077	13520	c.322G>C	p.D108H
CDKN2A	NM_000077	13524	c.237_238CC>TT	p.R80*
CDKN2A	NM_000077	13531	c.151-1G>A	p.?
CDKN2A	NM_000077	13534	c.373G>A	p.D125N
CDKN2A	NM_000077	13540	c.355G>C	p.E119Q
CDKN2A	NM_000077	13546	c.221A>T	p.D74V
CDKN2A	NM_000077	13548	c.364G>A	p.G122S
CDKN2A	NM_000077	13567	c.216C>A	p.C72*
CDKN2A	NM_000077	13568	c.225delC	p.A76fs*70
CDKN2A	NM_000077	13604	c.202G>A	p.A68T
CDKN2A	NM_000077	13607	c.310delC	p.L104fs*42
CDKN2A	NM_000077	13608	c.371G>A	p.R124H
CDKN2A	NM_000077	13613	c.250G>C	p.D84H
CDKN2A	NM_000077	13619	c.363delG	p.G122fs*24
CDKN2A	NM_000077	13633	c.386A>G	p.Y129C
CDKN2A	NM_000077	13642	c.228_229insT	p.T77fs*43
CDKN2A	NM_000077	13645	c.366C>A	p.G122G
CDKN2A	NM_000077	13675	c.305C>T	p.A102V
CDKN2A	NM_000077	13713	c.340C>T	p.P114S
CDKN2A	NM_000077	13717	c.206A>T	p.E69V
CDKN2A	NM_000077	13754	c.157_174del18	p.M53_R58del
CDKN2A	NM_000077	13766	c.227C>T	p.A76V
CDKN2A	NM_000077	13779	c.160_161insA	p.M54fs*66
CDKN2A	NM_000077	13782	c.187C>G	p.L63V
CDKN2A	NM_000077	13803	c.230_231delCT	p.L78fs*41
CDKN2A	NM_000077	13807	c.346G>T	p.D116Y
CDKN2A	NM_000077	13815	c.209C>T	p.P70L
CDKN2A	NM_000077	13827	c.378C>T	p.V126V
CDKN2A	NM_000077	13830	c.341C>A	p.P114H
CDKN2A	NM_000077	13965	c.156G>C	p.M52I
CDKN2A	NM_000077	13972	c.194T>C	p.L65P
CDKN2A	NM_000077	14253	c.197A>G	p.H66R
CDKN2A	NM_000077	14254	c.151-4G>C	p.?
CDKN2A	NM_000077	22559	c.169G>C	p.A57P
CDKN2A	NM_000077	22560	c.179C>T	p.A60V
CDKN2A	NM_000077	22561	c.213C>A	p.N71K
CDKN2A	NM_000077	28562	c.387C>A	p.Y129*
CDKN2A	NM_000077	28675	c.389T>C	p.L130P
CDKN2A	NM_000077	33797	c.370delC	p.R124fs*22

CDKN2A	NM_000077	33799	c.389T>G	p.L130R
CDKN2A	NM_000077	33800	c.390G>A	p.L130L
CDKN2A	NM_000077	33802	c.396G>A	p.A132A
CDKN2A_	ENST00000361570_v			
ENST00000	62	99935	c.404C>T	p.P135L
361570				
CDKN2A_				
ENST00000	ENST00000446177	99191	c.238C>T	p.R80*
446177				
CTNNB1	NM_001904	13168	c.104T>C	p.I35T
CTNNB1	NM_001904	13175	c.138G>A	p.L46L
CTNNB1	NM_001904	14256	c.73_96del24	p.WQQQSYLD25?
CTNNB1	NM_001904	17661	c.130C>G	p.P44A
CTNNB1	NM_001904	17941	c.67A>G	p.S23G
CTNNB1	NM_001904	22566	c.64G>A	p.V22I
CTNNB1	NM_001904	24746	c.112_114GGT>CCC	p.G38P
CTNNB1	NM_001904	27378	c.107A>G	p.H36R
CTNNB1	NM_001904	29289	c.125_126delCA	p.T42fs*7
CTNNB1	NM_001904	34125	c.90C>G	p.Y30*
CTNNB1	NM_001904	49161	c.43G>A	p.E15K
CTNNB1	NM_001904	5661	c.94G>T	p.D32Y
CTNNB1	NM_001904	5662	c.110C>T	p.S37F
CTNNB1	NM_001904	5663	c.133T>C	p.S45P
CTNNB1	NM_001904	5664	c.121A>G	p.T41A
CTNNB1	NM_001904	5666	c.110C>A	p.S37Y
CTNNB1	NM_001904	5667	c.134C>T	p.S45F
CTNNB1	NM_001904	5668	c.94G>C	p.D32H
CTNNB1	NM_001904	5669	c.98C>T	p.S33F
CTNNB1	NM_001904	5670	c.101G>T	p.G34V
CTNNB1	NM_001904	5671	c.101G>A	p.G34E
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CTNNB1	NM_001904	5674	c.104T>G	p.I35S
CTNNB1	NM_001904	5675	c.109T>G	p.S37A
CTNNB1	NM_001904	5676	c.122C>T	p.T41I
CTNNB1	NM_001904	5677	c.98C>G	p.S33C
CTNNB1	NM_001904	5678	c.107A>C	p.H36P
CTNNB1	NM_001904	5679	c.110C>G	p.S37C
CTNNB1	NM_001904	5681	c.95A>G	p.D32G
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CTNNB1	NM_001904	5683	c.97T>G	p.S33A
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CTNNB1	NM_001904	5686	c.100G>A	p.G34R
CTNNB1	NM_001904	5687	c.109T>C	p.S37P
CTNNB1	NM_001904	5688	c.121A>C	p.T41P
CTNNB1	NM_001904	5689	c.134C>G	p.S45C
CTNNB1	NM_001904	5690	c.95A>C	p.D32A
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CTNNB1	NM_001904	6064	c.74_97del24	p.W25_D32del
CTNNB1	NM_001904	6076	c.88_99del12	p.Y30_S33del
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EGFR	NM_005228	12366	c.2572C>A	p.L858M
EGFR	NM_005228	12367	c.2237_2254del18	p.E746_S752>A
EGFR	NM_005228	12369	c.2240_2254del15	p.L747_T751del
EGFR	NM_005228	12370	c.2240_2257del18	p.L747_P753>S
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EGFR	NM_005228	12373	c.2159C>T	p.S720F
EGFR	NM_005228	12374	c.2582T>G	p.L861R
EGFR	NM_005228	12377	c.2319_2320insCAC	p.H773_V774insH
EGFR	NM_005228	12378	c.2310_2311insGGT	p.D770_N771insG
EGFR	NM_005228	12382	c.2239_2248TTAAGAGAAG>C	p.L747_A750>P
EGFR	NM_005228	12383	c.2239_2251>C	p.L747_T751>P
EGFR	NM_005228	12384	c.2237_2255>T	p.E746_S752>V
EGFR	NM_005228	12386	c.2237_2252>T	p.E746_T751>V
EGFR	NM_005228	12427	c.2308_2309insGTT	p.D770>GY
EGFR	NM_005228	12428	c.2125_2127GAA>CAT	p.E709H
EGFR	NM_005228	12429	c.2573_2574TG>GT	p.L858R
EGFR	NM_005228	12675	c.2575G>A	p.A859T
EGFR	NM_005228	12678	c.2237_2251del15	p.E746_T751>A
EGFR	NM_005228	12728	c.2236_2253del18	p.E746_T751del
EGFR	NM_005228	12986	c.2429G>A	p.G810D
EGFR	NM_005228	12988	c.2125G>A	p.E709K
EGFR	NM_005228	13003	c.2310_2311insAAC	p.D770_N771insN
EGFR	NM_005228	13004	c.2310_2311insGGC	p.D770_N771insG
EGFR	NM_005228	13005	c.2318A>T	p.H773L
EGFR	NM_005228	13006	c.2320G>A	p.V774M
EGFR	NM_005228	13007	c.2335_2336GG>TT	p.G779F

EGFR	NM_005228	13008	c.2612C>G	p.A871G
EGFR	NM_005228	13009	c.2126A>G	p.E709G
EGFR	NM_005228	13180	c.2188C>T	p.L730F
EGFR	NM_005228	13181	c.2198C>T	p.P733L
EGFR	NM_005228	13182	c.2203G>A	p.G735S
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EGFR	NM_005228	13185	c.2252C>T	p.T751I
EGFR	NM_005228	13186	c.2255C>A	p.S752Y
EGFR	NM_005228	13188	c.2281G>A	p.D761N
EGFR	NM_005228	13189	c.2351C>T	p.S784F
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EGFR	NM_005228	13192	c.2428G>A	p.G810S
EGFR	NM_005228	13197	c.2590G>A	p.A864T
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EGFR	NM_005228	133189	c.2236_2256del21	p.E746_S752del
EGFR	NM_005228	133197	c.2239_2257>T	p.L747_P753>S
EGFR	NM_005228	133207	c.2252_2275del24	p.T751_I759del
EGFR	NM_005228	13400	c.2457G>A	p.V819V
EGFR	NM_005228	13427	c.2126A>C	p.E709A
EGFR	NM_005228	13432	c.2193G>A	p.W731*
EGFR	NM_005228	13433	c.2318A>G	p.H773R
EGFR	NM_005228	13553	c.2572_2573CT>AG	p.L858R
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EGFR	NM_005228	13979	c.2170G>A	p.G724S
EGFR	NM_005228	14068	c.2308G>A	p.D770N
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EGFR	NM_005228	18425	c.2156G>A	p.G719D
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EGFR	NM_005228	22992	c.2161G>A	p.G721S
EGFR	NM_005228	23571	c.2238_2252del15	p.L747_T751del
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EGFR	NM_005228	27041	c.2213T>G	p.V738G
EGFR	NM_005228	27042	c.2282A>G	p.D761G

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EGFR	NM_005228	28513	c.2350T>C	p.S784P
EGFR	NM_005228	28517	c.2235_2246del12	p.E746_E749del
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EGFR	NM_005228	28603	c.2293G>A	p.V765M
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EGFR	NM_005228	6213	c.2582T>A	p.L861Q
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FBXW7_N M_018315 _2	NM_018315.2	117308	c.1154G>A	p.R385H
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FBXW7_N M_018315 _2	NM_018315.2	74637	c.1273C>T	p.R425C
FBXW7_N M_018315 _2	NM_018315.2	99603	c.1273C>G	p.R425G
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FGFR1	NM_000604	601	c.374C>T	p.S125L
FGFR2	NM_000141.2	36901	c.929A>G	p.K310R
FGFR2	NM_000141.2	36902	c.1647T>G	p.N549K
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FGFR3	NM_000142	17461	c.1111A>T	p.S371C
FGFR3	NM_000142	24802	c.2089G>T	p.G697C
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FGFR3	NM_000142	29446	c.753C>T	p.H251H
FGFR3	NM_000142	714	c.742C>T	p.R248C
FGFR3	NM_000142	715	c.746C>G	p.S249C
FGFR3	NM_000142	716	c.1108G>T	p.G370C
FGFR3	NM_000142	718	c.1118A>G	p.Y373C
FGFR3	NM_000142	719	c.1948A>G	p.K650E
FGFR3	NM_000142	720	c.1949A>T	p.K650M
FGFR3	NM_000142	721	c.1172C>A	p.A391E
FGFR3	NM_000142	722	c.1107G>T	p.A369A
FGFR3	NM_000142	724	c.1150T>C	p.F384L
FGFR3	NM_000142	726	c.1948A>C	p.K650Q
FGFR3	NM_000142	729	c.2381_2381T>GA	p.L794fs*23
FGFR3	NM_000142	731	c.1949A>C	p.K650T
FOXL2			c.402 C>G	C134W
GNA11	NM_002067.1	52969	c.626A>T	p.Q209L
GNA11	NM_002067.1	52970	c.626A>C	p.Q209P

GNA11	NM_002067.1	238583	c.625C>A	p.Q209K
GNA11	NM_002067.1	52971	c.626_627AG>TA	p.Q209L
GNA11	NM_002067.1	52972	c.626_627AG>TT	p.Q209L
GNAQ	NM_002072.2	28757	c.626A>T	p.Q209L
GNAQ	NM_002072.2	28758	c.626A>C	p.Q209P
GNAQ	NM_002072.2	28759	c.625_626CA>TT	p.Q209L
GNAQ	NM_002072.2	132932	c.625C>A	p.Q209K
GNAQ	NM_002072.2	28760	c.626A>G	p.Q209R
GNAQ	NM_002072.2	28770	c.627A>T	p.Q209H
GNAS	NM_000516.3	27887	c.601C>T	p.R201C
GNAS	NM_000516.3	27888	c.680A>T	p.Q227L
GNAS	NM_000516.3	27895	c.602G>A	p.R201H
GNAS	NM_000516.3	27896	c.680A>G	p.Q227R
GNAS	NM_000516.3	27899	c.601C>A	p.R201S
GNAS	NM_000516.3	27900	c.681G>T	p.Q227H
GNAS	NM_000516.3	192557	c.699G>T	p.K233N
GNAS	NM_000516.3	28618	c.679C>A	p.Q227K
GNAS	NM_000516	NOCOSMIC227	c.679C>G	p.Q227E
GNAS_EN				
ST0000037	ENST00000371100	123397	c.2530C>T	p.R844C
1100				
GNAS_EN				
ST0000037	ENST00000371100	94388	c.2531G>A	p.R844H
1100				
GNAS_EN				
ST0000037	ENST00000371100	192558	c.2628G>T	p.K876N
1100				
HNF1A	NM_000545.3	21471	c.617G>T	p.W206L
HNF1A	NM_000545.3	21477	c.817A>G	p.K273E
HNF1A	NM_000545.3	21478	c.618G>T	p.W206C
HNF1A	NM_000545.3	24692	c.787C>T	p.R263C
HNF1A	NM_000545.3	24900	c.632A>C	p.Q211P
HNF1A	NM_000545.3	24915	c.607C>T	p.R203C
HNF1A	NM_000545.3	24918	c.618G>C	p.W206C
HNF1A	NM_000545.3	24923	c.779C>T	p.T260M
HNF1A	NM_000545.3	24931	c.620G>A	p.G207D
HNF1A	NM_000545.3	24933	c.815G>A	p.R272H
HRAS	NM_005343	249860	c.81T>C	p.H27H
HRAS	NM_005343	33692	c.185A>G	p.E62G
HRAS	NM_005343	33695	c.182_183AG>GA	p.Q61R
HRAS	NM_005343	479	c.33C>T	p.A11A
HRAS	NM_005343	480	c.34G>A	p.G12S
HRAS	NM_005343	481	c.34G>T	p.G12C
HRAS	NM_005343	482	c.34G>C	p.G12R
HRAS	NM_005343	483	c.35G>T	p.G12V
HRAS	NM_005343	484	c.35G>A	p.G12D
HRAS	NM_005343	485	c.35G>C	p.G12A
HRAS	NM_005343	486	c.37G>C	p.G13R
HRAS	NM_005343	487	c.37G>A	p.G13S
HRAS	NM_005343	488	c.37G>T	p.G13C
HRAS	NM_005343	489	c.38G>T	p.G13V
HRAS	NM_005343	490	c.38G>A	p.G13D
HRAS	NM_005343	496	c.181C>A	p.Q61K
HRAS	NM_005343	498	c.182A>T	p.Q61L

HRAS	NM_005343	499	c.182A>G	p.Q61R
HRAS	NM_005343	500	c.182A>C	p.Q61P
HRAS	NM_005343	501	c.182_183AG>GT	p.Q61R
HRAS	NM_005343	502	c.183G>T	p.Q61H
HRAS	NM_005343	503	c.183G>C	p.Q61H
HRAS	NM_005343	52978	c.182_183AG>TA	p.Q61L
HRAS	NM_005343	52979	c.181_182CA>AG	p.Q61R
HRAS_ENS				
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594				
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594				
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594				
IDH1	NM_005896.2	28746	c.395G>A	p.R132H
IDH1	NM_005896.2	28747	c.394C>T	p.R132C
IDH1	NM_005896.2	28748	c.394C>A	p.R132S
IDH1	NM_005896.2	28749	c.394C>G	p.R132G
IDH1	NM_005896.2	28750	c.395G>T	p.R132L
IDH1	NM_005896.2	86993	c.395_396GT>AC	p.R132H
IDH1	NM_005896.2	242544	c.356G>A	p.R119Q
IDH1	NM_005896.2	28751	c.394_395CG>GT	p.R132V
IDH1	NM_005896.2	51542	c.368G>A	p.G123E
IDH1	NM_005896.2	96532	c.390A>G	p.I130M
IDH1	NM_005896.2	96533	c.399T>A	p.H133Q
IDH1	NM_005896.2	96534	c.401C>A	p.A134D
IDH1	NM_005896.2	96922	c.367G>A	p.G123R
IDH1	NM_005896.2	97049	c.347A>G	p.N116S
IDH1	NM_005896	NOCOSMIC105	c.315C>T	p.G105G
KDR	NM_002253	21091	c.743C>G	p.A248G
KDR	NM_002253	32294	c.2617G>A	p.G873R
KDR	NM_002253	32339	c.824G>T	p.R275L
KDR	NM_002253	48460	c.3629C>T	p.P1210L
KDR	NM_002253	48461	c.3434G>A	p.G1145E
KDR	NM_002253	48462	c.3418C>A	p.L1140M
KDR	NM_002253	48463	c.2951G>C	p.S984T
KDR	NM_002253	48464	c.2917G>T	p.A973S
KDR	NM_002253	48465	c.1426G>T	p.V476L
KDR	NM_002253	48875	c.3922G>T	p.G1308*
KDR	NM_002253	48977	c.4063_4065delCCT	p.P1355del
KIT	NM_000222	1145	c.153C>G	p.G51G
KIT	NM_000222	1146	c.154G>A	p.D52N
KIT	NM_000222	1155	c.1588G>A	p.V530I
KIT	NM_000222	1169	c.1651_1665del15	p.P551_V555del
KIT	NM_000222	1177	c.1653_1670del18	p.M552_W557del
KIT	NM_000222	1179	c.1654_1659delATGTAT	p.M552_Y553del
KIT	NM_000222	1180	c.1654_1671del18	p.M552_W557del
KIT	NM_000222	1181	c.1654_1662del9	p.M552_E554del
KIT	NM_000222	1183	c.1654A>C	p.M552L
KIT	NM_000222	1187	c.1656_1670del15	p.Y553_W557del
KIT	NM_000222	1189	c.1657_1668del12	p.Y553_Q556del
KIT	NM_000222	1190	c.1657_1674del18	p.Y553_K558del

KIT	NM_000222	1192	c.1660_1674del15	p.E554_K558del
KIT	NM_000222	1194	c.1662_1685del24	p.V555_E562del
KIT	NM_000222	1198	c.1663_1677del15	p.V555_V559del
KIT	NM_000222	1199	c.1663_1674del12	p.V555_K558del
KIT	NM_000222	1200	c.1663_1713del51	p.V555_I571del
KIT	NM_000222	1201	c.1663_1668delGTACAG	p.V555_Q556del
KIT	NM_000222	1202	c.1663_1680del18	p.V555_V560del
KIT	NM_000222	1203	c.1663_1719del57	p.V555_P573del
KIT	NM_000222	1204	c.1666_1680del15	p.Q556_V560del
KIT	NM_000222	1205	c.1666_1728del63	p.Q556_L576del
KIT	NM_000222	1210	c.1667_1672delAGTGGA	p.W557_K558del
KIT	NM_000222	1211	c.1668_1673delGTGGAA	p.W557_K558del
KIT	NM_000222	1213	c.1668_1679del12	p.Q556_V560>H
KIT	NM_000222	1216	c.1669T>A	p.W557R
KIT	NM_000222	1217	c.1669_1674delTGGAAG	p.W557_K558del
KIT	NM_000222	1218	c.1669_1677del9	p.W557_V559del
KIT	NM_000222	1219	c.1669T>C	p.W557R
KIT	NM_000222	1220	c.1669_1671delTGG	p.W557del
KIT	NM_000222	1221	c.1669T>G	p.W557G
KIT	NM_000222	1223	c.1669_1680del12	p.W557_V560del
KIT	NM_000222	1226	c.1670_1675delGGAAGG	p.W557_V559>F
KIT	NM_000222	1227	c.1670G>C	p.W557S
KIT	NM_000222	1229	c.1670_1717del48	p.W557_P573>S
KIT	NM_000222	1232	c.1671_1679del9	p.W557_V560>C
KIT	NM_000222	1233	c.1671_1676delGAAGGT	p.W557_V559>C
KIT	NM_000222	1234	c.1672_1680del9	p.K558_V560del
KIT	NM_000222	1235	c.1672_1677delAAGGTT	p.K558_V559del
KIT	NM_000222	1238	c.1672_1692del21	p.K558_N564del
KIT	NM_000222	1239	c.1672_1686del15	p.K558_E562del
KIT	NM_000222	1241	c.1673_1678delAGGTTG	p.K558_V560>I
KIT	NM_000222	1243	c.1674G>A	p.K558K
KIT	NM_000222	1245	c.1674_1674G>TCCT	p.K558>NP
KIT	NM_000222	1247	c.1675_1677delGTT	p.V559del
KIT	NM_000222	1248	c.1675_1680delGTTGTT	p.V559_V560del
KIT	NM_000222	1249	c.1675_1695del21	p.V559_G565del
KIT	NM_000222	1250	c.1675_1683del9	p.V559_E561del
KIT	NM_000222	1251	c.1675G>A	p.V559I
KIT	NM_000222	1252	c.1676T>A	p.V559D
KIT	NM_000222	1253	c.1676T>G	p.V559G
KIT	NM_000222	1254	c.1676_1684del9	p.V559_E561del
KIT	NM_000222	1255	c.1676T>C	p.V559A
KIT	NM_000222	1256	c.1678_1680delGTT	p.V560del
KIT	NM_000222	1257	c.1679T>A	p.V560D
KIT	NM_000222	1258	c.1679_1681delTTG	p.V560del
KIT	NM_000222	1260	c.1679T>G	p.V560G
KIT	NM_000222	1264	c.1681G>A	p.E561K
KIT	NM_000222	1265	c.1683G>A	p.E561E
KIT	NM_000222	12706	c.1961T>C	p.V654A
KIT	NM_000222	12708	c.2009C>T	p.T670I
KIT	NM_000222	12709	c.2460T>A	p.D820E
KIT	NM_000222	1270	c.1690_1728del39	p.N564_L576del
KIT	NM_000222	12710	c.2458G>T	p.D820Y
KIT	NM_000222	12711	c.2447A>G	p.D816G
KIT	NM_000222	1273	c.1696A>G	p.N566D

KIT	NM_000222	1275	c.1698C>T	p.N566N
KIT	NM_000222	1277	c.1702T>G	p.Y568D
KIT	NM_000222	1285	c.1708_1728del21	p.Y570_L576del
KIT	NM_000222	1289	c.1726_1728delCTT	p.L576del
KIT	NM_000222	1290	c.1727T>C	p.L576P
KIT	NM_000222	1293	c.1729C>T	p.P577S
KIT	NM_000222	1294	c.1735_1737delGAT	p.D579del
KIT	NM_000222	1297	c.1751T>C	p.F584S
KIT	NM_000222	1299	c.1755C>T	p.P585P
KIT	NM_000222	1304	c.1924A>G	p.K642E
KIT	NM_000222	1306	c.2143_2145delAGC	p.S715del
KIT	NM_000222	1310	c.2446G>T	p.D816Y
KIT	NM_000222	1311	c.2446G>C	p.D816H
KIT	NM_000222	1312	c.2446_2447GA>TT	p.D816F
KIT	NM_000222	1314	c.2447A>T	p.D816V
KIT	NM_000222	1315	c.2453A>G	p.K818R
KIT	NM_000222	1316	c.2459A>G	p.D820G
KIT	NM_000222	1317	c.2459A>T	p.D820V
KIT	NM_000222	1321	c.2466T>A	p.N822K
KIT	NM_000222	1322	c.2466T>G	p.N822K
KIT	NM_000222	1323	c.2474T>C	p.V825A
KIT	NM_000222	1324	c.2515G>A	p.E839K
KIT	NM_000222	1326	c.1509_1510insGCCTAT	p.Y503_F504insAY
KIT	NM_000222	1327	c.1654_1668del15	p.M552_Q556del
KIT	NM_000222	1328	c.1655_1672del18	p.M552_W557del
KIT	NM_000222	1329	c.1661_1675del15	p.E554_K558del
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KIT	NM_000222	1333	c.1679_1680TT>AG	p.V560E
KIT	NM_000222	1334	c.1702_1722del21	p.Y568_T574del
KIT	NM_000222	133754	c.1711_1728del18	p.I571_L576del
KIT	NM_000222	133763	c.1657T>A	p.Y553N
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KIT	NM_000222	133767	c.2558G>A	p.W853*
KIT	NM_000222	17944	c.1660G>A	p.E554K
KIT	NM_000222	17946	c.1684G>A	p.E562K
KIT	NM_000222	18681	c.2467T>G	p.Y823D
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KIT	NM_000222	19029	c.1701T>A	p.N567K
KIT	NM_000222	19109	c.2464A>T	p.N822Y
KIT	NM_000222	19110	c.2473G>A	p.V825I
KIT	NM_000222	19285	c.2448C>G	p.D816E
KIT	NM_000222	19293	c.2008_2009AC>GA	p.T670E
KIT	NM_000222	19310	c.1669_1674delTGGAAG	p.W557_K558del
KIT	NM_000222	21976	c.1673_1674insTCC	p.K558>NP
KIT	NM_000222	21978	c.1671_1673GAA>TCC	p.W557_K558>CP
KIT	NM_000222	21979	c.2446_2447GA>AT	p.D816I
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KIT	NM_000222	22275	c.1658_1720del63	p.Y553_T574>S
KIT	NM_000222	22379	c.2458G>C	p.D820H
KIT	NM_000222	23418	c.?-?del?	p.Q556_K558del
KIT	NM_000222	23560	c.1690_1734del45	p.N564_Y578del
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KIT	NM_000222	28637	c.1672_1676AAGGT>TCTTC	p.K558_V559>SS
KIT	NM_000222	29015	c.1673A>G	p.K558R
KIT	NM_000222	29442	c.1687_1728del42	p.I563_L576del
KIT	NM_000222	30551	c.1672A>G	p.K558E
KIT	NM_000222	33965	c.1652C>T	p.P551L
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KIT	NM_000222	36305	c.1745G>A	p.W582*
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KIT	NM_000222	96888	c.1714G>A	p.D572N
KRAS	NM_004985	12654	c.30_31insGGA	p.G10_A11insG
KRAS	NM_004985	12655	c.36_37insGGT	p.G12_G13insG
KRAS	NM_004985	12703	c.57G>C	p.L19F
KRAS	NM_004985	12721	c.38_39GC>TT	p.G13V
KRAS	NM_004985	12722	c.40G>A	p.V14I
KRAS	NM_004985	12729	c.180_181TC>CA	p.Q61K
KRAS	NM_004985	14209	c.35_36GT>AC	p.G12D
KRAS	NM_004985	19404	c.436G>A	p.A146T
KRAS	NM_004985	19900	c.437C>T	p.A146V
KRAS	NM_004985	19905	c.436G>C	p.A146P
KRAS	NM_004985	19940	c.351A>C	p.K117N
KRAS	NM_004985	20818	c.57G>T	p.L19F
KRAS	NM_004985	219781	c.39_40insGGC	p.G13_V14insG
KRAS	NM_004985	25081	c.34_35GG>TA	p.G12Y
KRAS	NM_004985	28518	c.176C>G	p.A59G
KRAS	NM_004985	28519	c.351A>T	p.K117N
KRAS	NM_004985	34144	c.34_35GG>AT	p.G12I
KRAS	NM_004985	36281	c.34_36GGT>TGG	p.G12W
KRAS	NM_004985	507	c.24A>G	p.V8V
KRAS	NM_004985	510	c.31G>C	p.A11P
KRAS	NM_004985	511	c.32C>T	p.A11V
KRAS	NM_004985	512	c.34_35GG>TT	p.G12F
KRAS	NM_004985	513	c.34_36GGT>TGC	p.G12C
KRAS	NM_004985	514	c.34_35GG>CT	p.G12L
KRAS	NM_004985	515	c.35_36GT>TC	p.G12V
KRAS	NM_004985	516	c.34G>T	p.G12C
KRAS	NM_004985	517	c.34G>A	p.G12S
KRAS	NM_004985	518	c.34G>C	p.G12R
KRAS	NM_004985	519	c.35_36GT>AA	p.G12E
KRAS	NM_004985	520	c.35G>T	p.G12V
KRAS	NM_004985	521	c.35G>A	p.G12D
KRAS	NM_004985	522	c.35G>C	p.G12A
KRAS	NM_004985	523	c.36T>C	p.G12G
KRAS	NM_004985	524	c.36T>A	p.G12G
KRAS	NM_004985	526	c.37_39GGC>CGT	p.G13R

KRAS	NM_004985	527	c.37G>T	p.G13C
KRAS	NM_004985	528	c.37G>A	p.G13S
KRAS	NM_004985	529	c.37G>C	p.G13R
KRAS	NM_004985	530	c.38_39GC>TG	p.G13V
KRAS	NM_004985	531	c.38_39GC>AT	p.G13D
KRAS	NM_004985	532	c.38G>A	p.G13D
KRAS	NM_004985	533	c.38G>C	p.G13A
KRAS	NM_004985	534	c.38G>T	p.G13V
KRAS	NM_004985	535	c.39C>G	p.G13G
KRAS	NM_004985	536	c.39C>T	p.G13G
KRAS	NM_004985	537	c.39C>A	p.G13G
KRAS	NM_004985	538	c.43G>A	p.G15S
KRAS	NM_004985	542	c.53C>A	p.A18D
KRAS	NM_004985	543	c.64C>A	p.Q22K
KRAS	NM_004985	546	c.175G>A	p.A59T
KRAS	NM_004985	547	c.176C>A	p.A59E
KRAS	NM_004985	549	c.181C>A	p.Q61K
KRAS	NM_004985	550	c.181C>G	p.Q61E
KRAS	NM_004985	551	c.182A>C	p.Q61P
KRAS	NM_004985	552	c.182A>G	p.Q61R
KRAS	NM_004985	553	c.182A>T	p.Q61L
KRAS	NM_004985	554	c.183A>C	p.Q61H
KRAS	NM_004985	555	c.183A>T	p.Q61H
KRAS	NM_004985	87280	c.38_39GC>AA	p.G13E
KRAS	NM_004985	87281	c.36_37TG>AT	p.G13C
KRAS	NM_004985	87288	c.173C>T	p.T58I
KRAS	NM_004985	87298	c.180_181TC>AA	p.Q61K
KRAS	NM_004985	87301	c.33_34insGGAGCT	p.A11_G12insGA
MEK1			c.199G>A	D67N
(MAP2K1)				
MEK1			c.157T>C	F53L
(MAP2K1)				
MEK1			c.171G>T	K57N
(MAP2K1)				
MEK1			c.167A>C	Q56P
(MAP2K1)				
MEK1			c.362G>C	C121S
(MAP2K1)				
MEK1			c.607G>A	E203K
(MAP2K1)				
MEK1			c.332T>G	I111S
(MAP2K1)				
MEK1			c.1144A>C	N382H
(MAP2K1)				
MEK1			c.371C>T	P124L
(MAP2K1)				
MEK1			c.370C>T	P124S
(MAP2K1)				
MEK1			c.790C>T	P264S
(MAP2K1)				
MET	NM_000245	690	c.3742T>C	p.Y1248H
MET	NM_000245	691	c.3803T>C	p.M1268T
MET	NM_000245	696	c.3334C>T	p.H1112Y
MET	NM_000245	699	c.3743A>G	p.Y1248C

MET	NM_000245	700	c.3757T>G	p.Y1253D
MET	NM_000245	703	c.3335A>G	p.H1112R
MET	NM_000245	706	c.504G>T	p.E168D
MET	NM_000245	707	c.3029C>T	p.T1010I
MET	NM_000245	710	c.1124A>G	p.N375S
MET	NM_000245	201908	c.3350A>G	p.D1117G
MET	NM_000245	29636	c.2942_3082del141	p.982_1028del47
MET	NM_000245	49015	c.2942-20del22	p.?
MET	NM_000245	697	c.3370C>G	p.H1124D
MET	NM_000245	698	c.3335A>T	p.H1112L
MET	NM_000245	701	c.3390G>A	p.L1130L
MET	NM_000245	702	c.3352A>T	p.N1118Y
MET	NM_001127500	NOCOSMIC848	c.2543A>C	p.Y848S
MET	NM_001127500	NOCOSMIC988	c.2962C>T	p.R988C
MLH1	NM_000249.2	26085	c.1151T>A	p.V384D
MPL	NM_005373.1	142839	c.1544G>C	p.W515S
MPL	NM_005373.1	18918	c.1544G>T	p.W515L
MPL	NM_005373.1	19193	c.1543_1544TG>AA	p.W515K
MPL	NM_005373.1	27286	c.1514G>A	p.S505N
MPL	NM_005373.1	27287	c.1516G>A	p.A506T
MPL	NM_005373.1	27289	c.1543_1544TG>GC	p.W515A
MPL	NM_005373.1	27290	c.1555G>A	p.A519T
MPL	NM_005373.1	28487	c.1543_1545TGG>AAA	p.W515K
MPL	NM_005373.1	29008	c.1543T>A	p.W515R
MPL	NM_005373.1	43212	c.1543T>C	p.W515R
NOTCH1	NM_017617.2	12771	c.4802T>C	p.L1601P
NOTCH1	NM_017617.2	12772	c.4724T>C	p.L1575P
NOTCH1	NM_017617.2	12776	c.7378C>T	p.Q2460*
NOTCH1	NM_017617.2	13040	c.5030T>A	p.V1677D
NOTCH1	NM_017617.2	13042	c.4781T>C	p.L1594P
NOTCH1	NM_017617.2	13046	c.4757T>C	p.L1586P
NOTCH1	NM_017617.2	13047	c.4735_4737delGTG	p.V1579del
NOTCH1	NM_017617.2	13048	c.5036T>C	p.L1679P
NOTCH1	NM_017617.2	13050	c.4778T>C	p.F1593S
NOTCH1	NM_017617.2	13053	c.4796G>C	p.R1599P
NOTCH1	NM_017617.2	13061	c.7321C>T	p.Q2441*
NOTCH1	NM_017617.2	13070	c.7389delC	p.P2463fs*15
NOTCH1	NM_017617.2	13081	c.7403C>A	p.S2468*
NOTCH1	NM_017617.2	24673	c.4724T>C	p.L1575P
NOTCH1	NM_017617.2	24886	c.7390delG	p.A2464fs*14
NOTCH1	NM_017617.2	24888	c.4790T>A	p.L1597H
NOTCH1	NM_017617.2	25836	c.4730T>A	p.V1577E
NOTCH1	NM_017617.2	25839	c.4757T>G	p.L1586R
NOTCH1	NM_017617.2	28524	c.4802T>A	p.L1601Q
NOTCH1	NM_017617.2	28662	c.7402_7403insGG	p.S2468fs*11
NRAS	NM_002524	12723	c.34_35GG>AA	p.G12N
NRAS	NM_002524	12725	c.181_182CA>TT	p.Q61L
NRAS	NM_002524	12730	c.180_181AC>TA	p.Q61K
NRAS	NM_002524	28673	c.179G>A	p.G60E
NRAS	NM_002524	30646	c.182_183AA>TG	p.Q61L
NRAS	NM_002524	33693	c.182_183AA>GG	p.Q61R
NRAS	NM_002524	53223	c.181_183CAA>AAG	p.Q61K
NRAS	NM_002524	558	c.31G>A	p.A11T
NRAS	NM_002524	561	c.34G>C	p.G12R

NRAS	NM_002524	562	c.34G>T	p.G12C
NRAS	NM_002524	563	c.34G>A	p.G12S
NRAS	NM_002524	564	c.35G>A	p.G12D
NRAS	NM_002524	565	c.35G>C	p.G12A
NRAS	NM_002524	566	c.35G>T	p.G12V
NRAS	NM_002524	567	c.36T>C	p.G12G
NRAS	NM_002524	569	c.37G>C	p.G13R
NRAS	NM_002524	570	c.37G>T	p.G13C
NRAS	NM_002524	571	c.37G>A	p.G13S
NRAS	NM_002524	572	c.38_39GT>TC	p.G13V
NRAS	NM_002524	573	c.38G>A	p.G13D
NRAS	NM_002524	574	c.38G>T	p.G13V
NRAS	NM_002524	575	c.38G>C	p.G13A
NRAS	NM_002524	576	c.39T>C	p.G13G
NRAS	NM_002524	577	c.52G>A	p.A18T
NRAS	NM_002524	579	c.181_182CA>AG	p.Q61R
NRAS	NM_002524	580	c.181C>A	p.Q61K
NRAS	NM_002524	581	c.181C>G	p.Q61E
NRAS	NM_002524	582	c.182A>C	p.Q61P
NRAS	NM_002524	583	c.182A>T	p.Q61L
NRAS	NM_002524	584	c.182A>G	p.Q61R
NRAS	NM_002524	585	c.183A>T	p.Q61H
NRAS	NM_002524	586	c.183A>C	p.Q61H
NRAS	NM_002524	587	c.183A>G	p.Q61Q
NRAS	NM_002524	589	c.193A>T	p.S65C
NRAS	NM_002524	27174	c.436G>A	p.A146T
PDGFRA	NM_006206	12396	c.2524G>T	p.D842Y
PDGFRA	NM_006206	12397	c.2524_2526GAC>TAT	p.D842Y
PDGFRA	NM_006206	12398	c.2524_2525GA>AT	p.D842I
PDGFRA	NM_006206	12399	c.2536G>T	p.D846Y
PDGFRA	NM_006206	12400	c.2527_2538del12	p.I843_D846del
PDGFRA	NM_006206	12401	c.2524_2532del9	p.D842_M844del
PDGFRA	NM_006206	12402	c.2530_2541del12	p.M844_S847del
PDGFRA	NM_006206	12405	c.2521_2526delAGAGAC	p.R841_D842del
PDGFRA	NM_006206	12406	c.2524_2526delGAC	p.D842del
PDGFRA	NM_006206	12407	c.2528_2539del12	p.I843_S847>T
PDGFRA	NM_006206	12408	c.2526_2538>G	p.D842_D846>E
PDGFRA	NM_006206	12411	c.2524_2536>A	p.D842_D846>N
PDGFRA	NM_006206	12417	c.1697_1711del15	p.S566_E571>K
PDGFRA	NM_006206	12418	c.1698_1712del15	p.S566_E571>R
PDGFRA	NM_006206	21973	c.1659_1664delGAGGTA	p.R554_Y555del
PDGFRA	NM_006206	22413	c.2472C>T	p.V824V
PDGFRA	NM_006206	22414	c.1977C>G	p.N659K
PDGFRA	NM_006206	22415	c.1977C>A	p.N659K
PDGFRA	NM_006206	22416	c.1975A>T	p.N659Y
PDGFRA	NM_006206	28053	c.1694_1695insA	p.S566fs*6
PDGFRA	NM_006206	736	c.2525A>T	p.D842V
PDGFRA	NM_006206	737	c.2524_2535del12	p.D842_H845del
PDGFRA	NM_006206	739	c.1682T>A	p.V561D
PDGFRA	NM_006206	741	c.1678_1692del15	p.R560_S564del
PDGFRA	NM_006206	743	c.2021C>T	p.T674I
PDGFRA	NM_006206	96892	c.2526_2537del12	p.I843_D846del
PIK3CA	NM_006218.1	12458	c.1634A>C	p.E545A
PIK3CA	NM_006218.1	12459	c.1637A>G	p.Q546R

PIK3CA	NM_006218.1	12461	c.3062A>G	p.Y1021C
PIK3CA	NM_006218.1	12463	c.3128T>C	p.M1043T
PIK3CA	NM_006218.1	12464	c.3204_3205insA	p.N1068fs*4
PIK3CA	NM_006218.1	12580	c.333G>C	p.K111N
PIK3CA	NM_006218.1	12582	c.1252G>A	p.E418K
PIK3CA	NM_006218.1	12584	c.1357G>A	p.E453K
PIK3CA	NM_006218.1	12590	c.3073A>T	p.T1025S
PIK3CA	NM_006218.1	12591	c.3127A>G	p.M1043V
PIK3CA	NM_006218.1	12592	c.3132T>A	p.N1044K
PIK3CA	NM_006218.1	12597	c.3145G>C	p.G1049R
PIK3CA	NM_006218.1	13570	c.331A>G	p.K111E
PIK3CA	NM_006218.1	13594	c.3068G>A	p.R1023Q
PIK3CA	NM_006218.1	17442	c.1624G>C	p.E542Q
PIK3CA	NM_006218.1	17444	c.3061T>C	p.Y1021H
PIK3CA	NM_006218.1	17445	c.3104C>T	p.A1035V
PIK3CA	NM_006218.1	17449	c.3207A>G	p.*1069_*1069insW KDN*
PIK3CA	NM_006218.1	21451	c.3075C>T	p.T1025T
PIK3CA	NM_006218.1	21462	c.971C>T	p.T324I
PIK3CA	NM_006218.1	22540	c.1031T>G	p.V344G
PIK3CA	NM_006218.1	24712	c.1638G>T	p.Q546H
PIK3CA	NM_006218.1	24714	c.3141T>G	p.H1047Q
PIK3CA	NM_006218.1	249872	c.1631C>A	p.T544N
PIK3CA	NM_006218.1	249908	c.3207+29T>C	p.?
PIK3CA	NM_006218.1	25041	c.1637A>T	p.Q546L
PIK3CA	NM_006218.1	25085	c.3120G>A	p.M1040I
PIK3CA	NM_006218.1	25086	c.3133G>A	p.D1045N
PIK3CA	NM_006218.1	27133	c.1633G>C	p.E545Q
PIK3CA	NM_006218.1	27134	c.3130A>G	p.N1044D
PIK3CA	NM_006218.1	27155	c.1634A>T	p.E545V
PIK3CA	NM_006218.1	27156	c.3137C>A	p.A1046E
PIK3CA	NM_006218.1	27158	c.3146G>C	p.G1049A
PIK3CA	NM_006218.1	27273	c.3136G>A	p.A1046T
PIK3CA	NM_006218.1	27374	c.1635G>C	p.E545D
PIK3CA	NM_006218.1	27502	c.241G>A	p.E81K
PIK3CA	NM_006218.1	27505	c.333G>T	p.K111N
PIK3CA	NM_006218.1	28938	c.3059C>T	p.A1020V
PIK3CA	NM_006218.1	29110	c.3115T>C	p.F1039L
PIK3CA	NM_006218.1	29313	c.3129G>A	p.M1043I
PIK3CA	NM_006218.1	36285	c.3074C>T	p.T1025I
PIK3CA	NM_006218.1	36286	c.3085G>C	p.D1029H
PIK3CA	NM_006218.1	36289	c.3143A>G	p.H1048R
PIK3CA	NM_006218.1	6147	c.1636C>G	p.Q546E
PIK3CA	NM_006218.1	746	c.263G>A	p.R88Q
PIK3CA	NM_006218.1	754	c.1035T>A	p.N345K
PIK3CA	NM_006218.1	757	c.1258T>C	p.C420R
PIK3CA	NM_006218.1	759	c.1616C>G	p.P539R
PIK3CA	NM_006218.1	760	c.1624G>A	p.E542K
PIK3CA	NM_006218.1	762	c.1625A>T	p.E542V
PIK3CA	NM_006218.1	763	c.1633G>A	p.E545K
PIK3CA	NM_006218.1	764	c.1634A>G	p.E545G
PIK3CA	NM_006218.1	765	c.1635G>T	p.E545D
PIK3CA	NM_006218.1	766	c.1636C>A	p.Q546K
PIK3CA	NM_006218.1	767	c.1637A>C	p.Q546P

PIK3CA	NM_006218.1	769	c.2702G>T	p.C901F
PIK3CA	NM_006218.1	770	c.2725T>C	p.F909L
PIK3CA	NM_006218.1	771	c.3073A>G	p.T1025A
PIK3CA	NM_006218.1	772	c.3074C>A	p.T1025N
PIK3CA	NM_006218.1	773	c.3129G>T	p.M1043I
PIK3CA	NM_006218.1	774	c.3139C>T	p.H1047Y
PIK3CA	NM_006218.1	775	c.3140A>G	p.H1047R
PIK3CA	NM_006218.1	776	c.3140A>T	p.H1047L
PIK3CA	NM_006218.1	777	c.3145G>A	p.G1049S
PIK3CA	NM_006218.1	778	c.2102A>C	p.H701P
PIK3CA	NM_006218.1	94984	c.3129G>C	p.M1043I
PIK3CA	NM_006218.1	125368	c.344G>T	p.R115L
PIK3CA	NM_006218.1	12579	c.178C>A	p.Q60K
PIK3CA	NM_006218.1	12589	c.2727C>G	p.F909L
PIK3CA	NM_006218.1	14052	c.332A>G	p.K111R
PIK3CA	NM_006218.1	163484	c.238G>A	p.E80K
PIK3CA	NM_006218.1	166154	c.337_342delCTCAAT	p.L113_N114delLN
PIK3CA	NM_006218.1	21448	c.337_339delCTC	p.L113del
PIK3CA	NM_006218.1	230020	c.1396C>T	p.P466S
PIK3CA	NM_006218.1	24710	c.325_327delGAA	p.E109del
PIK3CA	NM_006218.1	24711	c.335T>A	p.I112N
PIK3CA	NM_006218.1	27490	c.333_335delGAT	p.K111_I112>N
PIK3CA	NM_006218.1	27497	c.323G>A	p.R108H
PIK3CA	NM_006218.1	27499	c.321_323delCCG	p.R108del
PIK3CA	NM_006218.1	39166	c.223C>G	p.Q75E
PIK3CA	NM_006218.1	41785	c.1371C>G	p.N457K
PIK3CA	NM_006218.1	51258	c.1221C>G	p.C407W
PIK3CA	NM_006218.1	51259	c.341_342insCCTCAA	p.N114_R115insLN
PIK3CA	NM_006218.1	6145	c.328G>A	p.E110K
PIK3CA	NM_006218.1	6149	c.1214C>T	p.S405F
PIK3CA	NM_006218.1	6150	c.1352_1366del15	p.G451_L456>V
PIK3CA	NM_006218.1	749	c.323G>C	p.R108P
PIK3CA	NM_006218.1	750	c.332_334delAGA	p.K111del
PIK3CA	NM_006218.1	758	c.1357G>C	p.E453Q
PIK3CA	NM_006218.1	86045	c.1358A>C	p.E453A
PIK3CA	NM_006218.1	86949	c.1404+10T>G	p.?
PIK3CA	NM_006218.1	86950	c.1404+2_1404+3insT	p.?
PIK3CA	NM_006218.1	87210	c.1252-14C>A	p.?
PIK3CA_E				
NST000002	ENST00000263967	125370	c.1633G>A	p.E545K
63967				
PIK3CA_E				
NST000002	ENST00000263967	94985	c.3129G>C	p.M1043I
63967				
PIK3CA_E				
NST000002	ENST00000263967	94986	c.3140A>G	p.H1047R
63967				
PIK3CA_E				
NST000002	ENST00000263967	94987	c.3140A>T	p.H1047L
63967				
PTEN	NM_000314.4	13135	c.323T>G	p.L108R
PTEN	NM_000314.4	133713	c.780_780delA	p.K260fs*6
PTEN	NM_000314.4	13452	c.863delA	p.E288fs*3
PTEN	NM_000314.4	13981	c.752G>A	p.G251D

PTEN	NM_000314.4	14087	c.165_209del45	p.?
PTEN	NM_000314.4	17564	c.766G>A	p.E256K
PTEN	NM_000314.4	18663	c.385G>T	p.G129*
PTEN	NM_000314.4	19564	c.1026+1G>T	p.?
PTEN	NM_000314.4	23626	c.962_963insA	p.N323fs*2
PTEN	NM_000314.4	23643	c.315T>G	p.C105W
PTEN	NM_000314.4	23644	c.743C>G	p.P248?
PTEN	NM_000314.4	23657	c.1015C>T	p.P339S
PTEN	NM_000314.4	26404	c.723_724insT	p.E242fs*1
PTEN	NM_000314.4	28884	c.377C>A	p.A126D
PTEN	NM_000314.4	28897	c.520T>G	p.Y174D
PTEN	NM_000314.4	28906	c.871G>T	p.E291*
PTEN	NM_000314.4	28914	c.878delG	p.G293fs*14
PTEN	NM_000314.4	30622	c.795delA	p.K267fs*9
PTEN	NM_000314.4	33702	c.530A>G	p.Y177C
PTEN	NM_000314.4	39615	c.950_953delTACT	p.L318fs*2
PTEN	NM_000314.4	41768	c.179_179delA	p.K60fs*39
PTEN	NM_000314.4	43075	c.787A>T	p.K263*
PTEN	NM_000314.4	43077	c.203A>G	p.Y68C
PTEN	NM_000314.4	43098	c.969delT	p.N323fs*21
PTEN	NM_000314.4	4885	c.1011_1014delTTCT	p.F337fs*6
PTEN	NM_000314.4	4889	c.202_203delTA	p.Y68fs*5
PTEN	NM_000314.4	4894	c.952_955delCTTA	p.L318fs*2
PTEN	NM_000314.4	4896	c.956_959delCTTT	p.T319fs*24
PTEN	NM_000314.4	4898	c.950_953delTACT	p.V317fs*3
PTEN	NM_000314.4	4899	c.951_954delACTT	p.V317fs*3
PTEN	NM_000314.4	4903	c.954_957delTACT	p.L318fs*2
PTEN	NM_000314.4	4907	c.364_368delATTCA	p.I122fs*2
PTEN	NM_000314.4	4908	c.760_764delAAAGT	p.K254fs*42
PTEN	NM_000314.4	4912	c.750_751delTG	p.C250fs*2
PTEN	NM_000314.4	4916	c.953_956delTTAC	p.L318fs*2
PTEN	NM_000314.4	4929	c.17_18delAA	p.K6fs*4
PTEN	NM_000314.4	4931	c.881_885delGTCTA	p.S294fs*2
PTEN	NM_000314.4	4932	c.987_990delTAAA	p.N329fs*14
PTEN	NM_000314.4	4937	c.16_17delAA	p.K6fs*4
PTEN	NM_000314.4	4942	c.187_188delAA	p.N63fs*10
PTEN	NM_000314.4	4943	c.950_954delTACTT	p.V317fs*6
PTEN	NM_000314.4	4958	c.955_958delACTT	p.T319fs*1
PTEN	NM_000314.4	4969	c.526_528delTAT	p.Y176del
PTEN	NM_000314.4	4976	c.49_51delCAA	p.Q17del
PTEN	NM_000314.4	4982	c.955_957delACT	p.T319del
PTEN	NM_000314.4	4986	c.741_742insA	p.P248fs*5
PTEN	NM_000314.4	4990	c.968_969insA	p.N323fs*2
PTEN	NM_000314.4	4994	c.963_964insA	p.T321fs*3
PTEN	NM_000314.4	5000	c.170_171insT	p.L57fs*6
PTEN	NM_000314.4	5008	c.955_956insA	p.T319fs*6
PTEN	NM_000314.4	5025	c.742_743insC	p.P248fs*5
PTEN	NM_000314.4	5026	c.742_743insA	p.P248fs*5
PTEN	NM_000314.4	5032	c.394G>A	p.G132S
PTEN	NM_000314.4	5033	c.389G>A	p.R130Q
PTEN	NM_000314.4	5036	c.202T>C	p.Y68H
PTEN	NM_000314.4	5037	c.37A>G	p.K13E
PTEN	NM_000314.4	5039	c.518G>A	p.R173H
PTEN	NM_000314.4	5041	c.377C>T	p.A126V

PTEN	NM_000314.4	5042	c.182A>G	p.H61R
PTEN	NM_000314.4	5044	c.397G>A	p.V133I
PTEN	NM_000314.4	5045	c.509G>A	p.S170N
PTEN	NM_000314.4	5048	c.196A>G	p.K66E
PTEN	NM_000314.4	5049	c.29G>A	p.S10N
PTEN	NM_000314.4	5051	c.376G>A	p.A126T
PTEN	NM_000314.4	5052	c.499A>G	p.T167A
PTEN	NM_000314.4	5078	c.367C>T	p.H123Y
PTEN	NM_000314.4	5082	c.373A>G	p.K125E
PTEN	NM_000314.4	5089	c.517C>T	p.R173C
PTEN	NM_000314.4	5091	c.493G>A	p.G165R
PTEN	NM_000314.4	5092	c.385G>A	p.G129R
PTEN	NM_000314.4	5093	c.992A>G	p.D331G
PTEN	NM_000314.4	5101	c.40A>G	p.R14G
PTEN	NM_000314.4	5106	c.335T>C	p.L112P
PTEN	NM_000314.4	5111	c.737C>T	p.P246L
PTEN	NM_000314.4	5113	c.314G>A	p.C105Y
PTEN	NM_000314.4	5114	c.494G>A	p.G165E
PTEN	NM_000314.4	5121	c.331T>C	p.W111R
PTEN	NM_000314.4	5123	c.395G>A	p.G132D
PTEN	NM_000314.4	5125	c.755A>G	p.D252G
PTEN	NM_000314.4	5127	c.170T>C	p.L57S
PTEN	NM_000314.4	5133	c.47A>G	p.Y16C
PTEN	NM_000314.4	5143	c.380G>A	p.G127E
PTEN	NM_000314.4	5149	c.511C>T	p.Q171*
PTEN	NM_000314.4	5150	c.640C>T	p.Q214*
PTEN	NM_000314.4	5151	c.1003C>T	p.R335*
PTEN	NM_000314.4	5152	c.388C>T	p.R130*
PTEN	NM_000314.4	5153	c.49C>T	p.Q17*
PTEN	NM_000314.4	5156	c.892C>T	p.Q298*
PTEN	NM_000314.4	5157	c.332G>A	p.W111*
PTEN	NM_000314.4	5159	c.733C>T	p.Q245*
PTEN	NM_000314.4	5160	c.781C>T	p.Q261*
PTEN	NM_000314.4	5161	c.328C>T	p.Q110*
PTEN	NM_000314.4	5191	c.198G>T	p.K66N
PTEN	NM_000314.4	5193	c.384G>T	p.K128N
PTEN	NM_000314.4	5199	c.334C>G	p.L112V
PTEN	NM_000314.4	5200	c.511C>G	p.Q171E
PTEN	NM_000314.4	5211	c.376G>C	p.A126P
PTEN	NM_000314.4	5212	c.319G>T	p.D107Y
PTEN	NM_000314.4	5214	c.361G>C	p.A121P
PTEN	NM_000314.4	5216	c.389G>T	p.R130L
PTEN	NM_000314.4	5218	c.509G>T	p.S170I
PTEN	NM_000314.4	5219	c.388C>G	p.R130G
PTEN	NM_000314.4	5220	c.751G>T	p.G251C
PTEN	NM_000314.4	5224	c.370T>A	p.C124S
PTEN	NM_000314.4	5230	c.758T>A	p.I253N
PTEN	NM_000314.4	5232	c.44G>T	p.R15I
PTEN	NM_000314.4	5244	c.512A>C	p.Q171P
PTEN	NM_000314.4	5246	c.754G>T	p.D252Y
PTEN	NM_000314.4	5253	c.170T>G	p.L57W
PTEN	NM_000314.4	5255	c.1021T>G	p.F341V
PTEN	NM_000314.4	5257	c.166T>G	p.F56V
PTEN	NM_000314.4	5266	c.314G>T	p.C105F

PTEN	NM_000314.4	5270	c.45A>T	p.R15S
PTEN	NM_000314.4	5271	c.371G>C	p.C124S
PTEN	NM_000314.4	5273	c.362C>A	p.A121E
PTEN	NM_000314.4	5277	c.389G>C	p.R130P
PTEN	NM_000314.4	5290	c.1008C>G	p.Y336*
PTEN	NM_000314.4	5292	c.703G>T	p.E235*
PTEN	NM_000314.4	5296	c.195C>A	p.Y65*
PTEN	NM_000314.4	5298	c.19G>T	p.E7*
PTEN	NM_000314.4	5313	c.176C>A	p.S59*
PTEN	NM_000314.4	5314	c.862G>T	p.E288*
PTEN	NM_000314.4	5317	c.195C>G	p.Y65*
PTEN	NM_000314.4	53243	c.964_964delA	p.N323fs*21
PTEN	NM_000314.4	5775	c.1002_1003CC>TT	p.R335*
PTEN	NM_000314.4	5801	c.968delA	p.N323fs*21
PTEN	NM_000314.4	5811	c.188delA	p.N63fs*36
PTEN	NM_000314.4	5812	c.391delA	p.T131fs*3
PTEN	NM_000314.4	5814	c.993delC	p.D331fs*13
PTEN	NM_000314.4	5816	c.867delA	p.V290fs*1
PTEN	NM_000314.4	5817	c.389delG	p.R130fs*4
PTEN	NM_000314.4	5822	c.738delG	p.P246fs*10
PTEN	NM_000314.4	5823	c.963delA	p.T321fs*23
PTEN	NM_000314.4	5824	c.370delT	p.C124fs*10
PTEN	NM_000314.4	5825	c.517delC	p.R173fs*10
PTEN	NM_000314.4	5840	c.321_326delTCTTGA	p.L108_D109del
PTEN	NM_000314.4	5841	c.348delC	p.D116fs*18
PTEN	NM_000314.4	5842	c.357delT	p.V119fs*15
PTEN	NM_000314.4	5844	c.383_391del9	p.K128_R130del
PTEN	NM_000314.4	5869	c.1009delT	p.F337fs*7
PTEN	NM_000314.4	5878	c.46_47insT	p.Y16fs*28
PTEN	NM_000314.4	5885	c.353_354insA	p.H118fs*8
PTEN	NM_000314.4	5887	c.711_712insAA	p.K237fs*19
PTEN	NM_000314.4	5888	c.723_724insTT	p.E242fs*15
PTEN	NM_000314.4	5907	c.493-12delT	p.?
PTEN	NM_000314.4	5915	c.1-9C>G	p.?
PTEN	NM_000314.4	5916	c.209+5G>A	p.?
PTEN	NM_000314.4	5957	c.1026+1G>T	p.?
PTEN	NM_000314.4	5958	c.165-1G>T	p.?
PTEN	NM_000314.4	5959	c.165-2A>C	p.?
PTEN	NM_000314.4	5960	c.165-1G>A	p.?
PTEN	NM_000314.4	5961	c.493-1G>A	p.?
PTEN	NM_000314.4	5974	c.209+1G>C	p.?
PTEN	NM_000314.4	5975	c.209+1delGT	p.?
PTEN	NM_000314.4	5976	c.209+1G>T	p.?
PTEN	NM_000314.4	5979	c.209+1delGTAA	p.?
PTEN	NM_000314.4	6206	c.314G>C	p.C105S
PTEN	NM_000314.4	87314	c.797_797delA	p.K267fs*9
PTEN	NM_000314.4	88109	c.724G>T	p.E242*
PTPN11	NM_002834.3	13000	c.226G>A	p.E76K
PTPN11	NM_002834.3	13010	c.178G>C	p.G60R
PTPN11	NM_002834.3	13011	c.181G>T	p.D61Y
PTPN11	NM_002834.3	13012	c.181G>A	p.D61N
PTPN11	NM_002834.3	13013	c.205G>A	p.E69K
PTPN11	NM_002834.3	13014	c.214G>A	p.A72T
PTPN11	NM_002834.3	13015	c.215C>T	p.A72V

PTPN11	NM_002834.3	13016	c.226G>C	p.E76Q
PTPN11	NM_002834.3	13017	c.227A>G	p.E76G
PTPN11	NM_002834.3	13019	c.218C>T	p.T73I
PTPN11	NM_002834.3	13020	c.1504T>C	p.S502P
PTPN11	NM_002834.3	13021	c.1508G>A	p.G503E
PTPN11	NM_002834.3	13022	c.182A>T	p.D61V
PTPN11	NM_002834.3	13023	c.1505C>T	p.S502L
PTPN11	NM_002834.3	13025	c.227A>T	p.E76V
PTPN11	NM_002834.3	13026	c.227A>C	p.E76A
PTPN11	NM_002834.3	13027	c.1508G>C	p.G503A
PTPN11	NM_002834.3	13028	c.179G>T	p.G60V
PTPN11	NM_002834.3	13029	c.213T>A	p.F71L
PTPN11	NM_002834.3	13031	c.1528C>A	p.Q510K
PTPN11	NM_002834.3	13032	c.172A>T	p.N58Y
PTPN11	NM_002834.3	13034	c.1472C>T	p.P491L
PTPN11	NM_002834.3	13035	c.215C>A	p.A72D
PTPN11	NM_002834.3	13039	c.211T>C	p.F71L
PTPN11	NM_002834.3	13993	c.155C>G	p.T52S
PTPN11	NM_002834.3	14269	c.182A>G	p.D61G
PTPN11	NM_002834.3	14271	c.1508G>T	p.G503V
PTPN11	NM_002834.3	20900	c.181G>C	p.D61H
RB1	NM_000321	1042	c.2107-2A>G	p.?
RB1	NM_000321	13117	c.2053C>T	p.Q685*
RB1	NM_000321	28816	c.940-2A>T	p.?
RB1	NM_000321	861	c.1981C>T	p.R661W
RB1	NM_000321	868	c.2242G>T	p.E748*
RB1	NM_000321	869	c.1980_1983delCCGG	p.L660fs*2
RB1	NM_000321	870	c.2028_2040del13	p.L676fs*16
RB1	NM_000321	879	c.1072C>T	p.R358*
RB1	NM_000321	883	c.2117G>T	p.C706F
RB1	NM_000321	887	c.1654C>T	p.R552*
RB1	NM_000321	888	c.1666C>T	p.R556*
RB1	NM_000321	890	c.409G>T	p.E137*
RB1	NM_000321	891	c.958C>T	p.R320*
RB1	NM_000321	892	c.1735C>T	p.R579*
RB1	NM_000321	895	c.1363C>T	p.R455*
RB1	NM_000321	915	c.596T>A	p.L199*
RB1	NM_000321	916	c.2261T>G	p.V754G
RB1	NM_000321	940	c.2143A>T	p.K715*
RET	NM_020975	133167	c.2647G>T	p.A883S
RET	NM_020975	21338	c.2304G>C	p.E768D
RET	NM_020975	27040	c.1886_1891delTGTGCG	p.L629_D631>H
RET	NM_020975	29803	c.1852T>C	p.C618R
RET	NM_020975	29804	c.1858T>C	p.C620R
RET	NM_020975	964	c.1888T>C	p.C630R
RET	NM_020975	965	c.2753T>C	p.M918T
RET	NM_020975	966	c.1900T>C	p.C634R
RET	NM_020975	968	c.1894_1899delGAGCTG	p.E632_L633del
RET	NM_020975	974	c.1901G>A	p.C634Y
RET	NM_020975	975	c.1902C>G	p.C634W
RET	NM_020975	977	c.2647_2648GC>TT	p.A883F
RET	NM_020975	978	c.1892A>G	p.D631G
RET	NM_020975	981	c.2646_2648AGC>TTT	p.A883F
RET	NM_020975	982	c.1895_1897delAGC	p.E632_L633>V

RET	NM_020975	983	c.1893_1898delCGAGCT	p.D631_L633>E
RET	NM_020975	984	c.1834_1860del27	p.F612_C620del
ROS1		COSM1072521		p.L1951M
ROS1				G2032R
ROS1				D2033N
ROS1				L2155S
SF3B1		COSM84677		p.K700E REF=T
SMAD4	NM_005359.3	13115	c.431C>G	p.S144*
SMAD4	NM_005359.3	14057	c.733C>T	p.Q245*
SMAD4	NM_005359.3	14096	c.1333C>T	p.R445*
SMAD4	NM_005359.3	14105	c.1394_1395insT	p.A466fs*28
SMAD4	NM_005359.3	14110	c.989A>C	p.E330A
SMAD4	NM_005359.3	14111	c.1028C>G	p.S343*
SMAD4	NM_005359.3	14113	c.1490G>A	p.R497H
SMAD4	NM_005359.3	14115	c.1569C>G	p.C523W
SMAD4	NM_005359.3	14118	c.502G>T	p.G168*
SMAD4	NM_005359.3	14121	c.1015_1029del15	p.F339_S343del
SMAD4	NM_005359.3	14122	c.1082G>A	p.R361H
SMAD4	NM_005359.3	14124	c.1341_1365del25	p.Q448fs*20
SMAD4	NM_005359.3	14126	c.1519A>C	p.K507Q
SMAD4	NM_005359.3	14129	c.1543A>T	p.R515*
SMAD4	NM_005359.3	14134	c.1576G>T	p.E526*
SMAD4	NM_005359.3	14135	c.1051G>C	p.D351H
SMAD4	NM_005359.3	14140	c.1081C>T	p.R361C
SMAD4	NM_005359.3	14163	c.931C>T	p.Q311*
SMAD4	NM_005359.3	14167	c.955+5G>C	p.?
SMAD4	NM_005359.3	14174	c.1072G>T	p.G358*
SMAD4	NM_005359.3	14175	c.1236C>G	p.Y412*
SMAD4	NM_005359.3	14177	c.1546_1553delCAGAGCAT	p.S517fs*7
SMAD4	NM_005359.3	14215	c.353C>T	p.A118V
SMAD4	NM_005359.3	14216	c.363_364insA	p.C123fs*2
SMAD4	NM_005359.3	14217	c.776_777delCT	p.T259fs*4
SMAD4	NM_005359.3	14220	c.1058A>G	p.Y353C
SMAD4	NM_005359.3	14221	c.1496G>A	p.C499Y
SMAD4	NM_005359.3	14223	c.1229_1230insCA	p.Q410fs*6
SMAD4	NM_005359.3	14232	c.1064A>G	p.D355G
SMAD4	NM_005359.3	14249	c.1156G>C	p.G386R
SMAD4	NM_005359.3	25274	c.366_367insA	p.C123fs*2
SMARCB1	NM_003073.2	1002	c.118C>T	p.R40*
SMARCB1	NM_003073.2	1057	c.1148delC	p.P383fs
SMARCB1	NM_003073.2	1060	c.1144delG	p.A382fs*4
SMARCB1	NM_003073.2	1090	c.1119-41G>A	p.?
SMARCB1	NM_003073.2	24595	c.157C>T	p.R53*
SMARCB1	NM_003073.2	29382	c.1143delG	p.A382fs*5
SMARCB1	NM_003073.2	29495	c.1145delC	p.P383fs*4
SMARCB1	NM_003073.2	989	c.1130G>A	p.R377H
SMARCB1	NM_003073.2	991	c.141C>A	p.Y47*
SMARCB1	NM_003073.2	992	c.472C>T	p.R158*
SMARCB1	NM_003073.2	993	c.601C>T	p.R201*
SMO	NM_005631.3	13145	c.595C>T	p.R199W
SMO	NM_005631.3	13146	c.1604G>T	p.W535L
SMO	NM_005631.3	13147	c.970G>A	p.A324T
SMO	NM_005631.3	13148	c.1210G>A	p.V404M

SMO	NM_005631.3	13150	c.1918A>G	p.T640A
SRC	NM_005417	1369	c.1591C>T	p.Q531*
STK11	NM_000455	12924	c.842delC	p.P281fs*6
STK11	NM_000455	12925	c.109C>T	p.Q37*
STK11	NM_000455	18652	c.996G>A	p.W332*
STK11	NM_000455	20857	c.787_790delTTGT	p.F264fs*22
STK11	NM_000455	20871	c.837delC	p.P281fs*6
STK11	NM_000455	20874	c.180C>G	p.Y60*
STK11	NM_000455	20943	c.508C>T	p.Q170*
STK11	NM_000455	20944	c.580G>T	p.D194Y
STK11	NM_000455	20957	c.581A>T	p.D194V
STK11	NM_000455	21212	c.169delG	p.E57fs*7
STK11	NM_000455	21354	c.511G>A	p.G171S
STK11	NM_000455	21355	c.842C>T	p.P281L
STK11	NM_000455	21359	c.595G>A	p.E199K
STK11	NM_000455	21360	c.1062C>G	p.F354L
STK11	NM_000455	21378	c.96C>G	p.T32T
STK11	NM_000455	25229	c.595G>T	p.E199*
STK11	NM_000455	25847	c.580G>A	p.D194N
STK11	NM_000455	25851	c.842_843insC	p.L282fs*3
STK11	NM_000455	27316	c.475C>T	p.Q159*
STK11	NM_000455	27322	c.180delC	p.Y60fs*1
STK11	NM_000455	28298	c.841_842>T	p.P281fs*6
STK11	NM_000455	29005	c.816C>T	p.Y272Y
STK11	NM_000455	48786	c.587G>T	p.G196V
TP53	NM_000546	10645	c.527G>T	p.C176F
TP53	NM_000546	10646	c.725G>A	p.C242Y
TP53	NM_000546	10647	c.404G>T	p.C135F
TP53	NM_000546	10648	c.524G>A	p.R175H
TP53	NM_000546	10650	c.529C>T	p.P177S
TP53	NM_000546	10651	c.530C>G	p.P177R
TP53	NM_000546	10654	c.637C>T	p.R213*
TP53	NM_000546	10656	c.742C>T	p.R248W
TP53	NM_000546	10659	c.817C>T	p.R273C
TP53	NM_000546	10660	c.818G>A	p.R273H
TP53	NM_000546	10662	c.743G>A	p.R248Q
TP53	NM_000546	10663	c.916C>T	p.R306*
TP53	NM_000546	10667	c.646G>A	p.V216M
TP53	NM_000546	10668	c.745A>G	p.R249G
TP53	NM_000546	10670	c.469G>T	p.V157F
TP53	NM_000546	10672	c.577C>T	p.H193Y
TP53	NM_000546	10684	c.403T>C	p.C135R
TP53	NM_000546	10687	c.527G>A	p.C176Y
TP53	NM_000546	10690	c.473G>A	p.R158H
TP53	NM_000546	10701	c.824G>T	p.C275F
TP53	NM_000546	10704	c.844C>T	p.R282W
TP53	NM_000546	10705	c.586C>T	p.R196*
TP53	NM_000546	10706	c.548C>G	p.S183*
TP53	NM_000546	10709	c.722C>G	p.S241C
TP53	NM_000546	10710	c.892G>T	p.E298*
TP53	NM_000546	10714	c.473G>T	p.R158L
TP53	NM_000546	10715	c.695T>A	p.I232N
TP53	NM_000546	10716	c.329G>T	p.R110L
TP53	NM_000546	10718	c.524G>T	p.R175L

TP53	NM_000546	10719	c.811G>A	p.E271K
TP53	NM_000546	10722	c.853G>A	p.E285K
TP53	NM_000546	10724	c.839G>C	p.R280T
TP53	NM_000546	10725	c.701A>G	p.Y234C
TP53	NM_000546	10726	c.856G>A	p.E286K
TP53	NM_000546	10728	c.839G>A	p.R280K
TP53	NM_000546	10731	c.707A>G	p.Y236C
TP53	NM_000546	10733	c.574C>T	p.Q192*
TP53	NM_000546	10735	c.638G>A	p.R213Q
TP53	NM_000546	10738	c.542G>A	p.R181H
TP53	NM_000546	10739	c.481G>A	p.A161T
TP53	NM_000546	10742	c.578A>G	p.H193R
TP53	NM_000546	10743	c.848G>C	p.R283P
TP53	NM_000546	10749	c.830G>T	p.C277F
TP53	NM_000546	10750	c.490A>T	p.K164*
TP53	NM_000546	10756	c.827C>T	p.A276V
TP53	NM_000546	10757	c.738G>C	p.M246I
TP53	NM_000546	10758	c.659A>G	p.Y220C
TP53	NM_000546	10760	c.467G>C	p.R156P
TP53	NM_000546	10762	c.490A>G	p.K164E
TP53	NM_000546	10768	c.535C>T	p.H179Y
TP53	NM_000546	10769	c.820G>T	p.V274F
TP53	NM_000546	10770	c.1045G>T	p.E349*
TP53	NM_000546	10771	c.749C>T	p.P250L
TP53	NM_000546	10777	c.715A>G	p.N239D
TP53	NM_000546	10779	c.818G>T	p.R273L
TP53	NM_000546	10785	c.747G>C	p.R249S
TP53	NM_000546	10788	c.764T>G	p.I255S
TP53	NM_000546	10790	c.455C>T	p.P152L
TP53	NM_000546	10794	c.796G>A	p.G266R
TP53	NM_000546	10801	c.404G>A	p.C135Y
TP53	NM_000546	10804	c.610G>T	p.E204*
TP53	NM_000546	10808	c.488A>G	p.Y163C
TP53	NM_000546	10810	c.725G>T	p.C242F
TP53	NM_000546	10812	c.722C>T	p.S241F
TP53	NM_000546	10813	c.394A>G	p.K132E
TP53	NM_000546	10814	c.832C>G	p.P278A
TP53	NM_000546	10817	c.747G>T	p.R249S
TP53	NM_000546	10834	c.711G>A	p.M237I
TP53	NM_000546	10856	c.880G>T	p.E294*
TP53	NM_000546	10859	c.814G>T	p.V272L
TP53	NM_000546	10862	c.378C>G	p.Y126*
TP53	NM_000546	10863	c.833C>T	p.P278L
TP53	NM_000546	10867	c.797G>A	p.G266E
TP53	NM_000546	10870	c.523C>G	p.R175G
TP53	NM_000546	10883	c.731G>A	p.G244D
TP53	NM_000546	10886	c.310C>T	p.Q104*
TP53	NM_000546	10887	c.833C>G	p.P278R
TP53	NM_000546	10888	c.378C>A	p.Y126*
TP53	NM_000546	10889	c.536A>G	p.H179R
TP53	NM_000546	10891	c.814G>A	p.V272M
TP53	NM_000546	10893	c.824G>A	p.C275Y
TP53	NM_000546	10911	c.847C>T	p.R283C
TP53	NM_000546	10912	c.463A>C	p.T155P

TP53	NM_000546	10931	c.751A>C	p.I251L
TP53	NM_000546	10935	c.722C>A	p.S241Y
TP53	NM_000546	10939	c.832C>T	p.P278S
TP53	NM_000546	10941	c.730G>A	p.G244S
TP53	NM_000546	10943	c.841G>C	p.D281H
TP53	NM_000546	10957	c.733G>C	p.G245R
TP53	NM_000546	10958	c.797G>T	p.G266V
TP53	NM_000546	10991	c.396G>T	p.K132N
TP53	NM_000546	10992	c.844C>G	p.R282G
TP53	NM_000546	10995	c.580C>T	p.L194F
TP53	NM_000546	10996	c.511G>T	p.E171*
TP53	NM_000546	11011	c.794T>C	p.L265P
TP53	NM_000546	11059	c.713G>A	p.C238Y
TP53	NM_000546	11063	c.711G>T	p.M237I
TP53	NM_000546	11066	c.578A>T	p.H193L
TP53	NM_000546	11071	c.1009C>T	p.R337C
TP53	NM_000546	11073	c.1024C>T	p.R342*
TP53	NM_000546	11078	c.1027G>T	p.E343*
TP53	NM_000546	11081	c.733G>T	p.G245C
TP53	NM_000546	11084	c.517G>A	p.V173M
TP53	NM_000546	11087	c.472C>G	p.R158G
TP53	NM_000546	11089	c.584T>C	p.I195T
TP53	NM_000546	11090	c.541C>T	p.R181C
TP53	NM_000546	11114	c.528C>G	p.C176W
TP53	NM_000546	11123	c.838A>G	p.R280G
TP53	NM_000546	11133	c.725G>C	p.C242S
TP53	NM_000546	11148	c.476C>T	p.A159V
TP53	NM_000546	11152	c.700T>C	p.Y234H
TP53	NM_000546	11166	c.406C>T	p.Q136*
TP53	NM_000546	11181	c.764T>C	p.I255T
TP53	NM_000546	11183	c.799C>T	p.R267W
TP53	NM_000546	11196	c.734G>T	p.G245V
TP53	NM_000546	11205	c.796G>C	p.G266R
TP53	NM_000546	11210	c.646G>T	p.V216L
TP53	NM_000546	11213	c.752T>C	p.I251T
TP53	NM_000546	11218	c.464C>A	p.T155N
TP53	NM_000546	11224	c.394A>C	p.K132Q
TP53	NM_000546	11232	c.842A>G	p.D281G
TP53	NM_000546	11244	c.764T>A	p.I255N
TP53	NM_000546	11249	c.537T>G	p.H179Q
TP53	NM_000546	11250	c.329G>C	p.R110P
TP53	NM_000546	11286	c.1015G>T	p.E339*
TP53	NM_000546	11287	c.839G>T	p.R280I
TP53	NM_000546	11290	c.625A>T	p.R209*
TP53	NM_000546	11291	c.1006G>T	p.E336*
TP53	NM_000546	11305	c.809T>C	p.F270S
TP53	NM_000546	11307	c.643A>T	p.S215C
TP53	NM_000546	11319	c.402T>G	p.F134L
TP53	NM_000546	11323	c.482C>A	p.A161D
TP53	NM_000546	11333	c.499C>T	p.Q167*
TP53	NM_000546	11351	c.614A>T	p.Y205F
TP53	NM_000546	11355	c.737T>C	p.M246T
TP53	NM_000546	11356	c.726C>G	p.C242W
TP53	NM_000546	11369	c.492G>T	p.K164N

TP53	NM_000546	11374	c.752T>A	p.I251N
TP53	NM_000546	11376	c.737T>G	p.M246R
TP53	NM_000546	11392	c.800G>C	p.R267P
TP53	NM_000546	11411	c.1010G>T	p.R337L
TP53	NM_000546	11448	c.321C>G	p.Y107*
TP53	NM_000546	11449	c.388C>T	p.L130F
TP53	NM_000546	11450	c.644G>T	p.S215I
TP53	NM_000546	11462	c.388C>G	p.L130V
TP53	NM_000546	11483	c.848G>A	p.R283H
TP53	NM_000546	11491	c.743G>C	p.R248P
TP53	NM_000546	11496	c.476C>A	p.A159D
TP53	NM_000546	11501	c.823T>G	p.C275G
TP53	NM_000546	11508	c.497C>A	p.S166*
TP53	NM_000546	11514	c.1001G>T	p.G334V
TP53	NM_000546	11516	c.841G>T	p.D281Y
TP53	NM_000546	11517	c.377A>G	p.Y126C
TP53	NM_000546	11524	c.730G>T	p.G244C
TP53	NM_000546	11542	c.703A>G	p.N235D
TP53	NM_000546	11564	c.742C>G	p.R248G
TP53	NM_000546	11582	c.395A>G	p.K132R
TP53	NM_000546	11606	c.31G>C	p.E11Q
TP53	NM_000546	11665	c.842A>C	p.D281A
TP53	NM_000546	11717	c.548C>A	p.S183*
TP53	NM_000546	11738	c.724T>C	p.C242R
TP53	NM_000546	11781	c.398T>A	p.M133K
TP53	NM_000546	11847	c.658T>G	p.Y220D
TP53	NM_000546	11860	c.638G>C	p.R213P
TP53	NM_000546	11929	c.760_761AT>GA	p.I254D
TP53	NM_000546	11966	c.485T>A	p.I162N
TP53	NM_000546	11998	c.534C>A	p.H178Q
TP53	NM_000546	12013	c.731G>C	p.G244A
TP53	NM_000546	12296	c.292C>T	p.P98S
TP53	NM_000546	13119	c.322_324delGGT	p.G108del
TP53	NM_000546	13120	c.626_627delGA	p.R209fs*6
TP53	NM_000546	13421	c.814delG	p.V272fs*73
TP53	NM_000546	146240	c.806_808delGCT	p.S269_F270>I
TP53	NM_000546	18597	c.1024delC	p.R342fs*3
TP53	NM_000546	18610	c.267delC	p.S90fs*33
TP53	NM_000546	18657	c.560-2A>G	p.?
TP53	NM_000546	21572	c.376-1G>A	p.?
TP53	NM_000546	22908	c.376-1G>T	p.?
TP53	NM_000546	249845	c.377_377delA	p.Y126fs*44
TP53	NM_000546	39293	c.734G>A	p.G245D
TP53	NM_000546	39455	c.569delC	p.P190fs*57
TP53	NM_000546	40942	c.380C>T	p.S127F
TP53	NM_000546	42811	c.641A>G	p.H214R
TP53	NM_000546	42813	c.313G>T	p.G105C
TP53	NM_000546	43054	c.518T>G	p.V173G
TP53	NM_000546	43533	c.391A>T	p.N131Y
TP53	NM_000546	43535	c.391A>C	p.N131H
TP53	NM_000546	43537	c.565G>A	p.A189T
TP53	NM_000546	43541	c.559+3G>C	p.?
TP53	NM_000546	43544	c.260C>A	p.P87Q
TP53	NM_000546	43545	c.503A>G	p.H168R

TP53	NM_000546	43548	c.467G>T	p.R156L
TP53	NM_000546	43550	c.694A>T	p.I232F
TP53	NM_000546	43555	c.736A>G	p.M246V
TP53	NM_000546	43559	c.517G>T	p.V173L
TP53	NM_000546	43564	c.708C>A	p.Y236*
TP53	NM_000546	43565	c.857A>G	p.E286G
TP53	NM_000546	43570	c.529_546del18	p.P177_C182delIPH HERC
TP53	NM_000546	43582	c.454C>T	p.P152S
TP53	NM_000546	43584	c.534_535CC>TT	p.H179Y
TP53	NM_000546	43585	c.843_844CC>TT	p.R282W
TP53	NM_000546	43587	c.832_833CC>TT	p.P278F
TP53	NM_000546	43588	c.740A>C	p.N247T
TP53	NM_000546	43592	c.395A>T	p.K132M
TP53	NM_000546	43594	c.605G>A	p.R202H
TP53	NM_000546	43596	c.841G>A	p.D281N
TP53	NM_000546	43597	c.538G>T	p.E180*
TP53	NM_000546	43599	c.607G>A	p.V203M
TP53	NM_000546	43602	c.706T>G	p.Y236D
TP53	NM_000546	43606	c.734G>A	p.G245D
TP53	NM_000546	43608	c.605G>C	p.R202P
TP53	NM_000546	43614	c.854A>C	p.E285A
TP53	NM_000546	43615	c.473G>C	p.R158P
TP53	NM_000546	43616	c.704A>G	p.N235S
TP53	NM_000546	43621	c.809T>G	p.F270C
TP53	NM_000546	43623	c.581T>A	p.L194H
TP53	NM_000546	43624	c.875A>G	p.K292R
TP53	NM_000546	43625	c.469G>A	p.V157I
TP53	NM_000546	43626	c.475G>A	p.A159T
TP53	NM_000546	43629	c.745A>T	p.R249W
TP53	NM_000546	43632	c.493C>T	p.Q165*
TP53	NM_000546	43635	c.536A>T	p.H179L
TP53	NM_000546	43641	c.628delA	p.N210fs*37
TP53	NM_000546	43642	c.613T>C	p.Y205H
TP53	NM_000546	43645	c.721delT	p.S241fs*6
TP53	NM_000546	43648	c.685_686delTG	p.C229fs*10
TP53	NM_000546	43650	c.638G>T	p.R213L
TP53	NM_000546	43651	c.763A>T	p.I255F
TP53	NM_000546	43652	c.731G>T	p.G244V
TP53	NM_000546	43656	c.732C>G	p.G244G
TP53	NM_000546	43657	c.569C>T	p.P190L
TP53	NM_000546	43660	c.719G>T	p.S240I
TP53	NM_000546	43661	c.394delA	p.K132fs*38
TP53	NM_000546	43663	c.826G>C	p.A276P
TP53	NM_000546	43665	c.746G>C	p.R249T
TP53	NM_000546	43666	c.462C>T	p.G154G
TP53	NM_000546	43667	c.820G>A	p.V274I
TP53	NM_000546	43670	c.465C>T	p.T155T
TP53	NM_000546	43674	c.835G>T	p.G279W
TP53	NM_000546	43675	c.457C>T	p.P153S
TP53	NM_000546	43678	c.305C>T	p.T102I
TP53	NM_000546	43679	c.531C>T	p.P177P
TP53	NM_000546	43680	c.523C>T	p.R175C
TP53	NM_000546	43681	c.647T>G	p.V216G

TP53	NM_000546	43682	c.328C>T	p.R110C
TP53	NM_000546	43683	c.758C>T	p.T253I
TP53	NM_000546	43684	c.720T>G	p.S240R
TP53	NM_000546	43687	c.641A>G	p.H214R
TP53	NM_000546	43688	c.265C>T	p.P89S
TP53	NM_000546	43689	c.482C>T	p.A161V
TP53	NM_000546	43690	c.592G>A	p.E198K
TP53	NM_000546	43692	c.460G>A	p.G154S
TP53	NM_000546	43695	c.748C>T	p.P250S
TP53	NM_000546	43697	c.832C>A	p.P278T
TP53	NM_000546	43698	c.566C>G	p.A189G
TP53	NM_000546	43700	c.712T>A	p.C238S
TP53	NM_000546	43702	c.571C>T	p.P191S
TP53	NM_000546	43704	c.405C>T	p.C135C
TP53	NM_000546	43706	c.811G>C	p.E271Q
TP53	NM_000546	43709	c.500A>G	p.Q167R
TP53	NM_000546	43710	c.468delC	p.V157fs*13
TP53	NM_000546	43714	c.836G>A	p.G279E
TP53	NM_000546	43723	c.398T>C	p.M133T
TP53	NM_000546	43725	c.862A>T	p.N288Y
TP53	NM_000546	43726	c.727A>T	p.M243L
TP53	NM_000546	43728	c.543C>T	p.R181R
TP53	NM_000546	43730	c.398T>G	p.M133R
TP53	NM_000546	43732	c.517delG	p.V173fs*1
TP53	NM_000546	43734	c.528C>A	p.C176*
TP53	NM_000546	43737	c.830G>A	p.C277Y
TP53	NM_000546	43739	c.467G>A	p.R156H
TP53	NM_000546	43743	c.914A>G	p.K305R
TP53	NM_000546	43744	c.466C>A	p.R156S
TP53	NM_000546	43746	c.881A>G	p.E294G
TP53	NM_000546	43747	c.872A>G	p.K291R
TP53	NM_000546	43749	c.595G>A	p.G199R
TP53	NM_000546	43750	c.811G>T	p.E271*
TP53	NM_000546	43753	c.560-1G>A	p.?
TP53	NM_000546	43755	c.833C>A	p.P278H
TP53	NM_000546	43761	c.612G>A	p.E204E
TP53	NM_000546	43765	c.727A>C	p.M243L
TP53	NM_000546	43766	c.899C>T	p.P300L
TP53	NM_000546	43767	c.406C>G	p.Q136E
TP53	NM_000546	43768	c.700T>G	p.Y234D
TP53	NM_000546	43772	c.538G>A	p.E180K
TP53	NM_000546	43773	c.913A>T	p.K305*
TP53	NM_000546	43776	c.861G>A	p.E287E
TP53	NM_000546	43777	c.603G>C	p.L201F
TP53	NM_000546	43778	c.713G>T	p.C238F
TP53	NM_000546	43779	c.589G>A	p.V197M
TP53	NM_000546	43781	c.472delC	p.R158fs*12
TP53	NM_000546	43782	c.576G>A	p.Q192Q
TP53	NM_000546	43787	c.217G>A	p.V73M
TP53	NM_000546	43793	c.617T>A	p.L206*
TP53	NM_000546	43795	c.1023delC	p.R342fs*3
TP53	NM_000546	43797	c.550G>C	p.D184H
TP53	NM_000546	43801	c.716A>C	p.N239T
TP53	NM_000546	43806	c.689C>A	p.T230N

TP53	NM_000546	43807	c.637delC	p.R213fs*34
TP53	NM_000546	43809	c.808T>A	p.F270I
TP53	NM_000546	43814	c.587G>C	p.R196P
TP53	NM_000546	43820	c.489C>G	p.Y163*
TP53	NM_000546	43823	c.825T>G	p.C275W
TP53	NM_000546	43826	c.706T>A	p.Y236N
TP53	NM_000546	43827	c.581T>C	p.L194P
TP53	NM_000546	43828	c.544T>A	p.C182S
TP53	NM_000546	43829	c.752T>G	p.I251S
TP53	NM_000546	43831	c.472_475delCGCG	p.R158fs*11
TP53	NM_000546	43833	c.578A>C	p.H193P
TP53	NM_000546	43836	c.475G>C	p.A159P
TP53	NM_000546	43837	c.843C>G	p.D281E
TP53	NM_000546	43841	c.560-1G>T	p.?
TP53	NM_000546	43843	c.817C>G	p.R273G
TP53	NM_000546	43844	c.613T>G	p.Y205D
TP53	NM_000546	43846	c.487T>C	p.Y163H
TP53	NM_000546	43848	c.472C>T	p.R158C
TP53	NM_000546	43850	c.659A>C	p.Y220S
TP53	NM_000546	43851	c.506T>C	p.M169T
TP53	NM_000546	43853	c.684C>G	p.D228E
TP53	NM_000546	43859	c.598delA	p.N200fs*47
TP53	NM_000546	43860	c.704A>T	p.N235I
TP53	NM_000546	43861	c.502C>T	p.H168Y
TP53	NM_000546	43862	c.683A>C	p.D228A
TP53	NM_000546	43864	c.739A>T	p.N247Y
TP53	NM_000546	43865	c.701A>C	p.Y234S
TP53	NM_000546	43868	c.689C>T	p.T230I
TP53	NM_000546	43871	c.746G>T	p.R249M
TP53	NM_000546	43872	c.560-1G>C	p.?
TP53	NM_000546	43879	c.812A>G	p.E271G
TP53	NM_000546	43881	c.757A>T	p.T253S
TP53	NM_000546	43882	c.1010G>A	p.R337H
TP53	NM_000546	43889	c.691A>T	p.T231S
TP53	NM_000546	43891	c.480G>A	p.M160I
TP53	NM_000546	43896	c.818G>C	p.R273P
TP53	NM_000546	43898	c.485T>G	p.I162S
TP53	NM_000546	43900	c.376T>G	p.Y126D
TP53	NM_000546	43902	c.823T>C	p.C275R
TP53	NM_000546	43903	c.470T>G	p.V157G
TP53	NM_000546	43905	c.590T>G	p.V197G
TP53	NM_000546	43906	c.843C>A	p.D281E
TP53	NM_000546	43909	c.817C>A	p.R273S
TP53	NM_000546	43910	c.245C>T	p.P82L
TP53	NM_000546	43912	c.395A>C	p.K132T
TP53	NM_000546	43915	c.886C>T	p.H296Y
TP53	NM_000546	43918	c.809T>A	p.F270Y
TP53	NM_000546	43919	c.856G>T	p.E286*
TP53	NM_000546	43920	c.680C>T	p.S227F
TP53	NM_000546	43923	c.800G>A	p.R267Q
TP53	NM_000546	43927	c.559+9C>T	p.?
TP53	NM_000546	43928	c.615T>A	p.Y205*
TP53	NM_000546	43929	c.582T>C	p.L194L
TP53	NM_000546	43931	c.523C>A	p.R175S

TP53	NM_000546	43934	c.471C>A	p.V157V
TP53	NM_000546	43935	c.577C>A	p.H193N
TP53	NM_000546	43936	c.857A>T	p.E286V
TP53	NM_000546	43939	c.632C>T	p.T211I
TP53	NM_000546	43940	c.474C>T	p.R158R
TP53	NM_000546	43941	c.400T>G	p.F134V
TP53	NM_000546	43945	c.821T>G	p.V274G
TP53	NM_000546	43947	c.614A>G	p.Y205C
TP53	NM_000546	43949	c.401T>G	p.F134C
TP53	NM_000546	43951	c.643A>G	p.S215G
TP53	NM_000546	43952	c.710T>A	p.M237K
TP53	NM_000546	43955	c.514G>A	p.V172I
TP53	NM_000546	43956	c.700T>A	p.Y234N
TP53	NM_000546	43957	c.750C>T	p.P250P
TP53	NM_000546	43958	c.843C>T	p.D281D
TP53	NM_000546	43960	c.683A>G	p.D228G
TP53	NM_000546	43962	c.805A>G	p.S269G
TP53	NM_000546	43963	c.396G>C	p.K132N
TP53	NM_000546	43964	c.459C>T	p.P153P
TP53	NM_000546	43965	c.734G>C	p.G245A
TP53	NM_000546	43967	c.751A>T	p.I251F
TP53	NM_000546	43968	c.866T>C	p.L289P
TP53	NM_000546	43970	c.380C>A	p.S127Y
TP53	NM_000546	43973	c.718A>G	p.S240G
TP53	NM_000546	43977	c.849C>T	p.R283R
TP53	NM_000546	43978	c.529delC	p.H178fs*69
TP53	NM_000546	43979	c.802A>C	p.N268H
TP53	NM_000546	43980	c.691A>G	p.T231A
TP53	NM_000546	43986	c.908G>A	p.S303N
TP53	NM_000546	43987	c.622G>A	p.D208N
TP53	NM_000546	43988	c.905G>A	p.G302E
TP53	NM_000546	43989	c.596G>A	p.G199E
TP53	NM_000546	43990	c.610G>A	p.E204K
TP53	NM_000546	43995	c.740A>T	p.N247I
TP53	NM_000546	44002	c.577C>G	p.H193D
TP53	NM_000546	44004	c.569C>G	p.P190R
TP53	NM_000546	44005	c.835delG	p.R280fs*65
TP53	NM_000546	44009	c.463_470delACCCGCGT	p.T155fs*23
TP53	NM_000546	44011	c.610delG	p.E204fs*43
TP53	NM_000546	44017	c.869G>A	p.R290H
TP53	NM_000546	44018	c.214C>T	p.R72C
TP53	NM_000546	44019	c.226_270del45	p.A76_S90del15
TP53	NM_000546	44023	c.560G>A	p.G187D
TP53	NM_000546	44026	c.559G>A	p.G187S
TP53	NM_000546	44029	c.550G>A	p.D184N
TP53	NM_000546	44030	c.760A>G	p.I254V
TP53	NM_000546	44032	c.298C>T	p.Q100*
TP53	NM_000546	44033	c.464C>T	p.T155I
TP53	NM_000546	44035	c.496T>C	p.S166P
TP53	NM_000546	44036	c.296C>T	p.S99F
TP53	NM_000546	44037	c.322G>A	p.G108S
TP53	NM_000546	44048	c.280T>A	p.S94T
TP53	NM_000546	44054	c.754C>T	p.L252F
TP53	NM_000546	44057	c.517G>C	p.V173L

TP53	NM_000546	44058	c.761T>C	p.I254T
TP53	NM_000546	44061	c.456G>A	p.P152P
TP53	NM_000546	44063	c.389T>G	p.L130R
TP53	NM_000546	44064	c.748delC	p.I251fs*94
TP53	NM_000546	44067	c.721T>A	p.S241T
TP53	NM_000546	44068	c.532C>A	p.H178N
TP53	NM_000546	44070	c.1031T>C	p.L344P
TP53	NM_000546	44072	c.706_708delTAC	p.Y236del
TP53	NM_000546	44074	c.605_606GT>CG	p.R202P
TP53	NM_000546	44075	c.251C>G	p.A84G
TP53	NM_000546	44076	c.655C>T	p.P219S
TP53	NM_000546	44091	c.746G>A	p.R249K
TP53	NM_000546	44092	c.794T>G	p.L265R
TP53	NM_000546	44093	c.644G>A	p.S215N
TP53	NM_000546	44094	c.716A>G	p.N239S
TP53	NM_000546	44096	c.748C>G	p.P250A
TP53	NM_000546	44097	c.530C>T	p.P177L
TP53	NM_000546	44102	c.637C>G	p.R213G
TP53	NM_000546	44103	c.737T>A	p.M246K
TP53	NM_000546	44112	c.640C>T	p.H214Y
TP53	NM_000546	44113	c.693C>T	p.T231T
TP53	NM_000546	44114	c.826G>A	p.A276T
TP53	NM_000546	44119	c.483C>T	p.A161A
TP53	NM_000546	44120	c.532C>T	p.H178Y
TP53	NM_000546	44124	c.751delA	p.I251fs*94
TP53	NM_000546	44125	c.486C>G	p.I162M
TP53	NM_000546	44126	c.507G>A	p.M169I
TP53	NM_000546	44127	c.880G>A	p.E294K
TP53	NM_000546	44128	c.879G>A	p.G293G
TP53	NM_000546	44129	c.729G>A	p.M243I
TP53	NM_000546	44130	c.477C>T	p.A159A
TP53	NM_000546	44131	c.879G>C	p.G293G
TP53	NM_000546	44132	c.708C>T	p.Y236Y
TP53	NM_000546	44133	c.859G>T	p.E287*
TP53	NM_000546	44134	c.528delC	p.H178fs*69
TP53	NM_000546	44135	c.724T>G	p.C242G
TP53	NM_000546	44140	c.596G>T	p.G199V
TP53	NM_000546	44142	c.377A>C	p.Y126S
TP53	NM_000546	44146	c.526T>A	p.C176S
TP53	NM_000546	44151	c.535C>A	p.H179N
TP53	NM_000546	44152	c.542G>T	p.R181L
TP53	NM_000546	44156	c.810T>A	p.F270L
TP53	NM_000546	44157	c.601delT	p.L201fs*46
TP53	NM_000546	44162	c.635_636delTT	p.F212fs*3
TP53	NM_000546	44165	c.903A>G	p.P301P
TP53	NM_000546	44167	c.908G>C	p.S303T
TP53	NM_000546	44169	c.614A>C	p.Y205S
TP53	NM_000546	44171	c.840A>T	p.R280S
TP53	NM_000546	44172	c.572C>G	p.P191R
TP53	NM_000546	44174	c.604C>A	p.R202S
TP53	NM_000546	44175	c.644G>C	p.S215T
TP53	NM_000546	44183	c.715delA	p.N239fs*8
TP53	NM_000546	44185	c.555C>A	p.S185R
TP53	NM_000546	44192	c.272G>A	p.W91*

TP53	NM_000546	44194	c.251C>T	p.A84V
TP53	NM_000546	44198	c.653T>G	p.V218G
TP53	NM_000546	44200	c.242C>T	p.T81I
TP53	NM_000546	44202	c.550G>T	p.D184Y
TP53	NM_000546	44206	c.399G>T	p.M133I
TP53	NM_000546	44207	c.874delA	p.E294fs*51
TP53	NM_000546	44212	c.391_393delAAC	p.N131del
TP53	NM_000546	44214	c.537T>A	p.H179Q
TP53	NM_000546	44215	c.533A>C	p.H178P
TP53	NM_000546	44216	c.487T>G	p.Y163D
TP53	NM_000546	44217	c.718delA	p.S240fs*7
TP53	NM_000546	44218	c.536A>C	p.H179P
TP53	NM_000546	44219	c.405C>G	p.C135W
TP53	NM_000546	44221	c.730G>C	p.G244R
TP53	NM_000546	44224	c.721T>G	p.S241A
TP53	NM_000546	44225	c.859G>A	p.E287K
TP53	NM_000546	44226	c.380C>T	p.S127F
TP53	NM_000546	44227	c.854A>T	p.E285V
TP53	NM_000546	44229	c.515T>A	p.V172D
TP53	NM_000546	44230	c.481delG	p.A161fs*9
TP53	NM_000546	44231	c.262delG	p.A88fs*35
TP53	NM_000546	44233	c.840A>C	p.R280S
TP53	NM_000546	44234	c.571_573delCCT	p.P191del
TP53	NM_000546	44236	c.806G>A	p.S269N
TP53	NM_000546	44237	c.904delG	p.S303fs*42
TP53	NM_000546	44238	c.631A>G	p.T211A
TP53	NM_000546	44239	c.647delT	p.V216fs*31
TP53	NM_000546	44240	c.514G>T	p.V172F
TP53	NM_000546	44241	c.592G>T	p.E198*
TP53	NM_000546	44247	c.754_756delCTC	p.L252del
TP53	NM_000546	44249	c.623A>T	p.D208V
TP53	NM_000546	44250	c.856G>C	p.E286Q
TP53	NM_000546	44257	c.301delA	p.T102fs*21
TP53	NM_000546	44262	c.808T>C	p.F270L
TP53	NM_000546	44267	c.472_477delCGCGCC	p.R158_A159delIRA
TP53	NM_000546	44268	c.559+1G>T	p.?
TP53	NM_000546	44271	c.688A>C	p.T230P
TP53	NM_000546	44274	c.647T>A	p.V216E
TP53	NM_000546	44275	c.499_500delCA	p.Q167fs*13
TP53	NM_000546	44282	c.496T>G	p.S166A
TP53	NM_000546	44287	c.229C>G	p.P77A
TP53	NM_000546	44289	c.497C>T	p.S166L
TP53	NM_000546	44290	c.763A>G	p.I255V
TP53	NM_000546	44292	c.858A>G	p.E286E
TP53	NM_000546	44294	c.815T>C	p.V272A
TP53	NM_000546	44297	c.376-3C>T	p.?
TP53	NM_000546	44298	c.462C>A	p.G154G
TP53	NM_000546	44299	c.501G>A	p.Q167Q
TP53	NM_000546	44300	c.548C>T	p.S183L
TP53	NM_000546	44301	c.468C>G	p.R156R
TP53	NM_000546	44303	c.463A>G	p.T155A
TP53	NM_000546	44305	c.479T>A	p.M160K
TP53	NM_000546	44306	c.845G>C	p.R282P
TP53	NM_000546	44308	c.494A>G	p.Q165R

TP53	NM_000546	44310	c.738G>A	p.M246I
TP53	NM_000546	44312	c.511G>A	p.E171K
TP53	NM_000546	44313	c.686G>A	p.C229Y
TP53	NM_000546	44317	c.653T>A	p.V218E
TP53	NM_000546	44319	c.405C>A	p.C135*
TP53	NM_000546	44320	c.484A>T	p.I162F
TP53	NM_000546	44321	c.712T>C	p.C238R
TP53	NM_000546	44322	c.728T>A	p.M243K
TP53	NM_000546	44326	c.706T>C	p.Y236H
TP53	NM_000546	44327	c.518T>C	p.V173A
TP53	NM_000546	44328	c.478A>G	p.M160V
TP53	NM_000546	44329	c.470T>A	p.V157D
TP53	NM_000546	44334	c.649G>T	p.V217L
TP53	NM_000546	44336	c.499delC	p.Q167fs*3
TP53	NM_000546	44338	c.845G>A	p.R282Q
TP53	NM_000546	44343	c.547T>C	p.S183P
TP53	NM_000546	44345	c.915G>T	p.K305N
TP53	NM_000546	44346	c.875A>C	p.K292T
TP53	NM_000546	44349	c.566C>T	p.A189V
TP53	NM_000546	44350	c.699C>G	p.H233Q
TP53	NM_000546	44351	c.572C>T	p.P191L
TP53	NM_000546	44352	c.850A>C	p.T284P
TP53	NM_000546	44358	c.634delT	p.R213fs*34
TP53	NM_000546	44360	c.686_687delGT	p.C229fs*10
TP53	NM_000546	44365	c.607G>T	p.V203L
TP53	NM_000546	44367	c.458C>T	p.P153L
TP53	NM_000546	44371	c.631delA	p.T211fs*36
TP53	NM_000546	44372	c.640delC	p.H214fs*33
TP53	NM_000546	44375	c.650T>G	p.V217G
TP53	NM_000546	44378	c.726C>A	p.C242*
TP53	NM_000546	44380	c.376T>A	p.Y126N
TP53	NM_000546	44383	c.518T>G	p.V173G
TP53	NM_000546	44384	c.510G>A	p.T170T
TP53	NM_000546	44387	c.491A>C	p.K164T
TP53	NM_000546	44388	c.853G>T	p.E285*
TP53	NM_000546	44390	c.838A>T	p.R280*
TP53	NM_000546	44391	c.489C>T	p.Y163Y
TP53	NM_000546	44393	c.821T>C	p.V274A
TP53	NM_000546	44396	c.382delC	p.P128fs*42
TP53	NM_000546	44397	c.382C>T	p.P128S
TP53	NM_000546	44398	c.682G>A	p.D228N
TP53	NM_000546	44399	c.677G>T	p.G226V
TP53	NM_000546	44405	c.376_396del21	p.Y126_K132delYS PALNK
TP53	NM_000546	44407	c.642T>G	p.H214Q
TP53	NM_000546	44411	c.608T>A	p.V203E
TP53	NM_000546	44412	c.882G>A	p.E294E
TP53	NM_000546	44413	c.484A>G	p.I162V
TP53	NM_000546	44415	c.711G>C	p.M237I
TP53	NM_000546	44416	c.459C>A	p.P153P
TP53	NM_000546	44417	c.910delA	p.T304fs*41
TP53	NM_000546	44424	c.590T>A	p.V197E
TP53	NM_000546	44426	c.568C>G	p.P190A
TP53	NM_000546	44428	c.741C>T	p.N247N

TP53	NM_000546	44431	c.505A>G	p.M169V
TP53	NM_000546	44433	c.872A>C	p.K291T
TP53	NM_000546	44438	c.568C>A	p.P190T
TP53	NM_000546	44439	c.656C>T	p.P219L
TP53	NM_000546	44441	c.813G>C	p.E271D
TP53	NM_000546	44443	c.820G>C	p.V274L
TP53	NM_000546	44446	c.873G>C	p.K291N
TP53	NM_000546	44447	c.287C>T	p.S96F
TP53	NM_000546	44448	c.821T>A	p.V274D
TP53	NM_000546	44451	c.874A>G	p.K292E
TP53	NM_000546	44453	c.309C>G	p.Y103*
TP53	NM_000546	44457	c.751_759delATCCTCACC	p.I251_T253delIIT
TP53	NM_000546	44458	c.688_698del11	p.T230fs*6
TP53	NM_000546	44460	c.757_760delACCA	p.T253fs*91
TP53	NM_000546	44463	c.848G>T	p.R283L
TP53	NM_000546	44464	c.749_750CC>AG	p.P250Q
TP53	NM_000546	44467	c.497C>G	p.S166*
TP53	NM_000546	44469	c.812A>T	p.E271V
TP53	NM_000546	44470	c.845G>T	p.R282L
TP53	NM_000546	44474	c.392A>G	p.N131S
TP53	NM_000546	44475	c.871A>T	p.K291*
TP53	NM_000546	44476	c.749C>A	p.P250H
TP53	NM_000546	44481	c.313G>T	p.G105C
TP53	NM_000546	44492	c.273G>A	p.W91*
TP53	NM_000546	44495	c.559+2T>A	p.?
TP53	NM_000546	44502	c.599A>G	p.N200S
TP53	NM_000546	44505	c.660T>G	p.Y220*
TP53	NM_000546	44506	c.401T>C	p.F134S
TP53	NM_000546	44510	c.717C>G	p.N239K
TP53	NM_000546	44511	c.753C>A	p.I251I
TP53	NM_000546	44512	c.740A>G	p.N247S
TP53	NM_000546	44513	c.732C>A	p.G244G
TP53	NM_000546	44514	c.728T>G	p.M243R
TP53	NM_000546	44517	c.519G>A	p.V173V
TP53	NM_000546	44518	c.522G>A	p.R174R
TP53	NM_000546	44521	c.490A>C	p.K164Q
TP53	NM_000546	44522	c.887A>T	p.H296L
TP53	NM_000546	44523	c.863A>G	p.N288S
TP53	NM_000546	44524	c.521G>A	p.R174K
TP53	NM_000546	44525	c.709A>G	p.M237V
TP53	NM_000546	44526	c.471C>T	p.V157V
TP53	NM_000546	44535	c.761T>A	p.I254N
TP53	NM_000546	44536	c.728T>C	p.M243T
TP53	NM_000546	44537	c.595G>T	p.G199*
TP53	NM_000546	44539	c.584T>G	p.I195S
TP53	NM_000546	44541	c.754delC	p.L252fs*93
TP53	NM_000546	44544	c.766A>G	p.T256A
TP53	NM_000546	44546	c.545G>A	p.C182Y
TP53	NM_000546	44547	c.677G>A	p.G226D
TP53	NM_000546	44550	c.386C>T	p.A129V
TP53	NM_000546	44552	c.509C>T	p.T170M
TP53	NM_000546	44561	c.454C>A	p.P152T
TP53	NM_000546	44563	c.544T>C	p.C182R
TP53	NM_000546	44565	c.907A>T	p.S303C

TP53	NM_000546	44566	c.525C>G	p.R175R
TP53	NM_000546	44567	c.647T>C	p.V216A
TP53	NM_000546	44568	c.840A>G	p.R280R
TP53	NM_000546	44569	c.588A>G	p.R196R
TP53	NM_000546	44571	c.581T>G	p.L194R
TP53	NM_000546	44578	c.721T>C	p.S241P
TP53	NM_000546	44580	c.815T>A	p.V272E
TP53	NM_000546	44585	c.655delC	p.Y220fs*27
TP53	NM_000546	44589	c.393_395delCAA	p.N131del
TP53	NM_000546	44599	c.587G>A	p.R196Q
TP53	NM_000546	44601	c.695T>C	p.I232T
TP53	NM_000546	44603	c.835G>A	p.G279R
TP53	NM_000546	44607	c.646_648delGTG	p.V216del
TP53	NM_000546	44609	c.748_749CC>TT	p.P250F
TP53	NM_000546	44613	c.455C>A	p.P152Q
TP53	NM_000546	44615	c.586C>A	p.R196R
TP53	NM_000546	44621	c.718A>T	p.S240C
TP53	NM_000546	44622	c.694A>G	p.I232V
TP53	NM_000546	44623	c.487T>A	p.Y163N
TP53	NM_000546	44625	c.747G>A	p.R249R
TP53	NM_000546	44633	c.583A>T	p.I195F
TP53	NM_000546	44637	c.658T>C	p.Y220H
TP53	NM_000546	44638	c.640_647delCATAGTGT	p.H214fs*5
TP53	NM_000546	44639	c.869G>T	p.R290L
TP53	NM_000546	44641	c.394A>T	p.K132*
TP53	NM_000546	44642	c.733delG	p.G245fs*2
TP53	NM_000546	44643	c.404G>C	p.C135S
TP53	NM_000546	44645	c.527G>C	p.C176S
TP53	NM_000546	44647	c.717C>A	p.N239K
TP53	NM_000546	44650	c.751_753delATC	p.I251del
TP53	NM_000546	44651	c.856_863delGAAGAGAA	p.E286fs*17
TP53	NM_000546	44653	c.713G>C	p.C238S
TP53	NM_000546	44654	c.400T>C	p.F134L
TP53	NM_000546	44657	c.722delC	p.C242fs*5
TP53	NM_000546	44659	c.532delC	p.H178fs*69
TP53	NM_000546	44661	c.632C>A	p.T211N
TP53	NM_000546	44662	c.766A>T	p.T256S
TP53	NM_000546	44664	c.736_750del15	p.M246_P250delIM NRRP
TP53	NM_000546	44665	c.568_570delCCT	p.P190del
TP53	NM_000546	44670	c.400delT	p.C135fs*35
TP53	NM_000546	44672	c.658T>A	p.Y220N
TP53	NM_000546	44673	c.284C>T	p.S95F
TP53	NM_000546	44676	c.714T>G	p.C238W
TP53	NM_000546	44681	c.293C>T	p.P98L
TP53	NM_000546	44682	c.568C>T	p.P190S
TP53	NM_000546	44683	c.652G>A	p.V218M
TP53	NM_000546	44687	c.379T>C	p.S127P
TP53	NM_000546	44689	c.657C>T	p.P219P
TP53	NM_000546	44692	c.526T>G	p.C176G
TP53	NM_000546	44693	c.707A>C	p.Y236S
TP53	NM_000546	44694	c.486C>A	p.I162I
TP53	NM_000546	44695	c.634_635delTT	p.F212fs*3
TP53	NM_000546	44700	c.556G>A	p.D186N

TP53	NM_000546	44701	c.817delC	p.R273fs*72
TP53	NM_000546	44705	c.697C>T	p.H233Y
TP53	NM_000546	44707	c.609G>A	p.V203V
TP53	NM_000546	44709	c.855G>A	p.E285E
TP53	NM_000546	44714	c.553A>G	p.S185G
TP53	NM_000546	44715	c.460G>T	p.G154C
TP53	NM_000546	44724	c.846G>A	p.R282R
TP53	NM_000546	44725	c.522delG	p.R174fs*73
TP53	NM_000546	44726	c.460_466delGGCACCC	p.G154fs*14
TP53	NM_000546	44729	c.898C>T	p.P300S
TP53	NM_000546	44730	c.529_545del17	p.P177fs*3
TP53	NM_000546	44732	c.512A>G	p.E171G
TP53	NM_000546	44735	c.825T>C	p.C275C
TP53	NM_000546	44737	c.860A>G	p.E287G
TP53	NM_000546	44742	c.523_540del18	p.R175_E180delIRC PHHE
TP53	NM_000546	44749	c.453C>T	p.P151P
TP53	NM_000546	44750	c.883C>T	p.P295S
TP53	NM_000546	44753	c.901C>T	p.P301S
TP53	NM_000546	44757	c.586delC	p.R196fs*51
TP53	NM_000546	44759	c.526delT	p.C176fs*71
TP53	NM_000546	44769	c.755T>C	p.L252P
TP53	NM_000546	44774	c.376_393del18	p.Y126_N131delIYS PALN
TP53	NM_000546	44776	c.535C>G	p.H179D
TP53	NM_000546	44782	c.520A>T	p.R174W
TP53	NM_000546	44784	c.703_705delAAC	p.N235del
TP53	NM_000546	44787	c.732C>T	p.G244G
TP53	NM_000546	44788	c.454C>G	p.P152A
TP53	NM_000546	44793	c.537T>C	p.H179H
TP53	NM_000546	44794	c.392A>T	p.N131I
TP53	NM_000546	44801	c.503A>T	p.H168L
TP53	NM_000546	44808	c.503A>C	p.H168P
TP53	NM_000546	44817	c.661G>T	p.E221*
TP53	NM_000546	44818	c.531C>G	p.P177P
TP53	NM_000546	44820	c.692C>T	p.T231I
TP53	NM_000546	44829	c.403T>G	p.C135G
TP53	NM_000546	44830	c.1066G>T	p.G356W
TP53	NM_000546	44832	c.1096T>G	p.S366A
TP53	NM_000546	44835	c.852A>T	p.T284T
TP53	NM_000546	44837	c.556G>C	p.D186H
TP53	NM_000546	44838	c.720T>C	p.S240S
TP53	NM_000546	44841	c.491A>T	p.K164M
TP53	NM_000546	44842	c.478A>C	p.M160L
TP53	NM_000546	44843	c.759C>T	p.T253T
TP53	NM_000546	44844	c.727A>G	p.M243V
TP53	NM_000546	44845	c.591G>A	p.V197V
TP53	NM_000546	44846	c.636T>A	p.F212L
TP53	NM_000546	44848	c.579T>C	p.H193H
TP53	NM_000546	44849	c.575A>G	p.Q192R
TP53	NM_000546	44850	c.494A>T	p.Q165L
TP53	NM_000546	44851	c.494A>C	p.Q165P
TP53	NM_000546	44852	c.617delT	p.L206fs*41
TP53	NM_000546	44853	c.661G>A	p.E221K

TP53	NM_000546	44854	c.655C>A	p.P219T
TP53	NM_000546	44861	c.490delA	p.K164fs*6
TP53	NM_000546	44868	c.804C>T	p.N268N
TP53	NM_000546	44870	c.815T>G	p.V272G
TP53	NM_000546	44871	c.833delC	p.P278fs*67
TP53	NM_000546	44877	c.584T>A	p.I195N
TP53	NM_000546	44879	c.1033delA	p.N345fs*25
TP53	NM_000546	44886	c.807C>T	p.S269S
TP53	NM_000546	44887	c.644delG	p.S215fs*32
TP53	NM_000546	44891	c.796G>T	p.G266*
TP53	NM_000546	44896	c.835_838delGGGA	p.G279fs*65
TP53	NM_000546	44897	c.871_889del19	p.K291fs*48
TP53	NM_000546	44900	c.735C>T	p.G245G
TP53	NM_000546	44901	c.532C>G	p.H178D
TP53	NM_000546	44903	c.736delA	p.M246fs*1
TP53	NM_000546	44908	c.743_744GG>AA	p.R248Q
TP53	NM_000546	44910	c.403T>A	p.C135S
TP53	NM_000546	44916	c.746delG	p.R249fs*96
TP53	NM_000546	44918	c.844C>A	p.R282R
TP53	NM_000546	44920	c.742C>A	p.R248R
TP53	NM_000546	44921	c.748_756delCCCATCCTC	p.P250_L252delPIL
TP53	NM_000546	44923	c.565G>C	p.A189P
TP53	NM_000546	44924	c.615T>G	p.Y205*
TP53	NM_000546	44925	c.605G>T	p.R202L
TP53	NM_000546	44929	c.650T>A	p.V217E
TP53	NM_000546	44930	c.653T>C	p.V218A
TP53	NM_000546	44933	c.376-4A>G	p.?
TP53	NM_000546	44935	c.724T>A	p.C242S
TP53	NM_000546	44940	c.730delG	p.G244fs*3
TP53	NM_000546	44948	c.526T>C	p.C176R
TP53	NM_000546	44953	c.700_702delTAC	p.Y234del
TP53	NM_000546	44956	c.808T>G	p.F270V
TP53	NM_000546	44960	c.708C>G	p.Y236*
TP53	NM_000546	44964	c.719G>C	p.S240T
TP53	NM_000546	44965	c.709A>T	p.M237L
TP53	NM_000546	44966	c.385G>A	p.A129T
TP53	NM_000546	44971	c.534C>T	p.H178H
TP53	NM_000546	44972	c.831T>A	p.C277*
TP53	NM_000546	44973	c.516T>C	p.V172V
TP53	NM_000546	44979	c.645T>G	p.S215R
TP53	NM_000546	44986	c.302A>G	p.K101R
TP53	NM_000546	44996	c.515T>C	p.V172A
TP53	NM_000546	45005	c.739A>G	p.N247D
TP53	NM_000546	45015	c.380_381CC>TT	p.S127F
TP53	NM_000546	45017	c.722_723CC>TT	p.S241F
TP53	NM_000546	45019	c.471_472CC>TT	p.R158C
TP53	NM_000546	45021	c.585_586CC>TT	p.R196*
TP53	NM_000546	45025	c.488A>C	p.Y163S
TP53	NM_000546	45026	c.560-2A>T	p.?
TP53	NM_000546	45028	c.684C>T	p.D228D
TP53	NM_000546	45029	c.565_591del27	p.A189_V197delAP
TP53	NM_000546	45032	c.710T>G	PQHLIRV
TP53	NM_000546	45034	c.748_749CC>AA	p.M237R
				p.P250N

TP53	NM_000546	45035	c.761T>G	p.I254S
TP53	NM_000546	45040	c.321C>A	p.Y107*
TP53	NM_000546	45044	c.576G>T	p.Q192H
TP53	NM_000546	45045	c.695T>G	p.I232S
TP53	NM_000546	45046	c.542G>C	p.R181P
TP53	NM_000546	45047	c.515T>G	p.V172G
TP53	NM_000546	45050	c.871A>G	p.K291E
TP53	NM_000546	45051	c.597A>G	p.G199G
TP53	NM_000546	45055	c.715_720delAACAGT	p.N239_S240delINS
TP53	NM_000546	45057	c.475delG	p.A159fs*11
TP53	NM_000546	45069	c.886delC	p.H296fs*49
TP53	NM_000546	45074	c.829T>G	p.C277G
TP53	NM_000546	45077	c.390C>T	p.L130L
TP53	NM_000546	45084	c.744G>A	p.R248R
TP53	NM_000546	45089	c.407A>C	p.Q136P
TP53	NM_000546	45091	c.755T>A	p.L252H
TP53	NM_000546	45101	c.913_915AAG>TAA	p.K305*
TP53	NM_000546	45103	c.492G>A	p.K164K
TP53	NM_000546	45109	c.831T>C	p.C277C
TP53	NM_000546	45110	c.650T>C	p.V217A
TP53	NM_000546	45111	c.469_473delGTCCG	p.V157fs*22
TP53	NM_000546	45114	c.702C>A	p.Y234*
TP53	NM_000546	45115	c.640C>G	p.H214D
TP53	NM_000546	45116	c.742delC	p.R248fs*97
TP53	NM_000546	45120	c.469G>C	p.V157L
TP53	NM_000546	45122	c.645T>A	p.S215R
TP53	NM_000546	45128	c.911C>T	p.T304I
TP53	NM_000546	45131	c.383C>T	p.P128L
TP53	NM_000546	45134	c.715_726del12	p.N239_C242delINS SC
TP53	NM_000546	45138	c.853G>C	p.E285Q
TP53	NM_000546	45140	c.572_574delCTC	p.P191del
TP53	NM_000546	45154	c.466C>G	p.R156G
TP53	NM_000546	45157	c.688delA	p.T230fs*17
TP53	NM_000546	45162	c.709delA	p.M237fs*10
TP53	NM_000546	45168	c.722_724delCCT	p.S241del
TP53	NM_000546	45169	c.326T>C	p.F109S
TP53	NM_000546	45172	c.703A>T	p.N235Y
TP53	NM_000546	45178	c.832delC	p.P278fs*67
TP53	NM_000546	45179	c.313G>C	p.G105R
TP53	NM_000546	45184	c.902delC	p.P301fs*44
TP53	NM_000546	45187	c.490_499del10	p.K164fs*3
TP53	NM_000546	45188	c.847delC	p.R283fs*62
TP53	NM_000546	45194	c.487delT	p.Y163fs*7
TP53	NM_000546	45198	c.555C>T	p.S185S
TP53	NM_000546	45200	c.233C>T	p.A78V
TP53	NM_000546	45233	c.884C>T	p.P295L
TP53	NM_000546	45240	c.560G>T	p.G187V
TP53	NM_000546	45248	c.805A>T	p.S269C
TP53	NM_000546	45253	c.611A>G	p.E204G
TP53	NM_000546	45257	c.626G>C	p.R209T
TP53	NM_000546	45261	c.720T>A	p.S240R
TP53	NM_000546	45268	c.827C>A	p.A276D
TP53	NM_000546	45275	c.559G>T	p.G187C

TP53	NM_000546	45276	c.1025G>C	p.R342P
TP53	NM_000546	45277	c.856delG	p.E286fs*59
TP53	NM_000546	45278	c.1025G>A	p.R342Q
TP53	NM_000546	45284	c.813G>A	p.E271E
TP53	NM_000546	45286	c.475G>T	p.A159S
TP53	NM_000546	45288	c.217G>C	p.V73L
TP53	NM_000546	45293	c.407A>G	p.Q136R
TP53	NM_000546	45297	c.810T>G	p.F270L
TP53	NM_000546	45299	c.831T>G	p.C277W
TP53	NM_000546	45306	c.886C>A	p.H296N
TP53	NM_000546	45307	c.309C>A	p.Y103*
TP53	NM_000546	45308	c.607delG	p.V203fs*44
TP53	NM_000546	45311	c.898C>G	p.P300A
TP53	NM_000546	45314	c.553delA	p.S185fs*62
TP53	NM_000546	45320	c.569delC	p.P190fs*57
TP53	NM_000546	45322	c.757A>G	p.T253A
TP53	NM_000546	45326	c.530C>A	p.P177H
TP53	NM_000546	45329	c.710T>C	p.M237T
TP53	NM_000546	45332	c.885T>C	p.P295P
TP53	NM_000546	45338	c.552T>C	p.D184D
TP53	NM_000546	45341	c.571delC	p.P191fs*56
TP53	NM_000546	45342	c.500A>T	p.Q167L
TP53	NM_000546	45364	c.376-1delG	p.?
TP53	NM_000546	45372	c.540G>T	p.E180D
TP53	NM_000546	45393	c.793C>A	p.L265M
TP53	NM_000546	45394	c.687T>A	p.C229*
TP53	NM_000546	45399	c.526_543del18	p.C176_R181delICP HHER
TP53	NM_000546	45407	c.751A>G	p.I251V
TP53	NM_000546	45410	c.733_734GG>AA	p.G245N
TP53	NM_000546	45411	c.489C>A	p.Y163*
TP53	NM_000546	45413	c.824G>C	p.C275S
TP53	NM_000546	45416	c.524G>C	p.R175P
TP53	NM_000546	45417	c.877G>A	p.G293R
TP53	NM_000546	45438	c.626delG	p.R209fs*38
TP53	NM_000546	45440	c.567C>T	p.A189A
TP53	NM_000546	45441	c.629A>G	p.N210S
TP53	NM_000546	45446	c.865C>T	p.L289F
TP53	NM_000546	45449	c.592G>C	p.E198Q
TP53	NM_000546	45459	c.862delA	p.N288fs*57
TP53	NM_000546	45467	c.826G>T	p.A276S
TP53	NM_000546	45479	c.504C>T	p.H168H
TP53	NM_000546	45487	c.898delC	p.P301fs*44
TP53	NM_000546	45488	c.797G>C	p.G266A
TP53	NM_000546	45489	c.603G>T	p.L201F
TP53	NM_000546	45490	c.507G>T	p.M169I
TP53	NM_000546	45491	c.822T>G	p.V274V
TP53	NM_000546	45494	c.888_889CC>TT	p.H297Y
TP53	NM_000546	45500	c.281C>A	p.S94*
TP53	NM_000546	45505	c.455C>G	p.P152R
TP53	NM_000546	45506	c.460_461GG>AT	p.G154I
TP53	NM_000546	45507	c.806G>C	p.S269T
TP53	NM_000546	45509	c.321C>T	p.Y107Y
TP53	NM_000546	45511	c.645T>C	p.S215S

TP53	NM_000546	45515	c.525C>T	p.R175R
TP53	NM_000546	45516	c.662A>G	p.E221G
TP53	NM_000546	45519	c.620A>G	p.D207G
TP53	NM_000546	45529	c.683A>T	p.D228V
TP53	NM_000546	45534	c.882G>T	p.E294D
TP53	NM_000546	45536	c.1061A>G	p.Q354R
TP53	NM_000546	45541	c.510G>T	p.T170T
TP53	NM_000546	45543	c.743_744GG>TT	p.R248L
TP53	NM_000546	45546	c.901delC	p.P301fs*44
TP53	NM_000546	45548	c.721_723delTCC	p.S241del
TP53	NM_000546	45551	c.469_471delGTC	p.V157del
TP53	NM_000546	45562	c.546C>A	p.C182*
TP53	NM_000546	45583	c.514_559del46	p.V173fs*59
TP53	NM_000546	45586	c.397delA	p.M133fs*37
TP53	NM_000546	45594	c.453C>G	p.P151P
TP53	NM_000546	45607	c.676G>A	p.G226S
TP53	NM_000546	45611	c.876A>C	p.K292N
TP53	NM_000546	45612	c.685T>C	p.C229R
TP53	NM_000546	45620	c.704A>C	p.N235T
TP53	NM_000546	45622	c.461G>A	p.G154D
TP53	NM_000546	45626	c.501G>T	p.Q167H
TP53	NM_000546	45627	c.486C>T	p.I162I
TP53	NM_000546	45631	c.688A>T	p.T230S
TP53	NM_000546	45632	c.741C>A	p.N247K
TP53	NM_000546	45639	c.1024delC	p.R342fs*3
TP53	NM_000546	45647	c.760A>T	p.I254F
TP53	NM_000546	45649	c.854A>G	p.E285G
TP53	NM_000546	45654	c.685_699del15	p.C229_H233delICT TIH
TP53	NM_000546	45660	c.457C>A	p.P153T
TP53	NM_000546	45670	c.877delG	p.E294fs*51
TP53	NM_000546	45671	c.521G>T	p.R174M
TP53	NM_000546	45672	c.376-2A>G	p.?
TP53	NM_000546	45674	c.480G>T	p.M160I
TP53	NM_000546	45677	c.714T>A	p.C238*
TP53	NM_000546	45679	c.868C>T	p.R290C
TP53	NM_000546	45685	c.613T>A	p.Y205N
TP53	NM_000546	45688	c.867C>T	p.L289L
TP53	NM_000546	45691	c.726C>T	p.C242C
TP53	NM_000546	45695	c.827C>G	p.A276G
TP53	NM_000546	45703	c.634T>A	p.F212I
TP53	NM_000546	45706	c.801G>T	p.R267R
TP53	NM_000546	45707	c.624C>A	p.D208E
TP53	NM_000546	45711	c.559+2T>G	p.?
TP53	NM_000546	45728	c.850A>G	p.T284A
TP53	NM_000546	45729	c.842A>T	p.D281V
TP53	NM_000546	45735	c.744G>C	p.R248R
TP53	NM_000546	45739	c.677G>C	p.G226A
TP53	NM_000546	45751	c.511G>C	p.E171Q
TP53	NM_000546	45777	c.633delT	p.R213fs*34
TP53	NM_000546	45784	c.691delA	p.T231fs*16
TP53	NM_000546	45786	c.682G>T	p.D228Y
TP53	NM_000546	45796	c.623A>G	p.D208G
TP53	NM_000546	45801	c.312delG	p.G105fs*18

TP53	NM_000546	45803	c.889C>T	p.H297Y
TP53	NM_000546	45809	c.376-1G>C	p.?
TP53	NM_000546	45820	c.893A>T	p.E298V
TP53	NM_000546	45823	c.558T>C	p.D186D
TP53	NM_000546	45824	c.880G>C	p.E294Q
TP53	NM_000546	45838	c.556delG	p.D186fs*61
TP53	NM_000546	45843	c.838_843delAGAGAC	p.R280_D281delRD
TP53	NM_000546	45851	c.624C>G	p.D208E
TP53	NM_000546	45862	c.710delT	p.M237fs*10
TP53	NM_000546	45868	c.678C>T	p.G226G
TP53	NM_000546	45870	c.715A>T	p.N239Y
TP53	NM_000546	45882	c.391delA	p.N131fs*39
TP53	NM_000546	45891	c.847_866del20	p.R283fs*16
TP53	NM_000546	45896	c.466delC	p.R156fs*14
TP53	NM_000546	45898	c.814G>C	p.V272L
TP53	NM_000546	45906	c.514delG	p.V172fs*2
TP53	NM_000546	45918	c.253C>T	p.P85S
TP53	NM_000546	45944	c.318C>G	p.S106R
TP53	NM_000546	45959	c.698A>T	p.H233L
TP53	NM_000546	45980	c.757A>C	p.T253P
TP53	NM_000546	45985	c.215G>A	p.R72H
TP53	NM_000546	45992	c.736A>T	p.M246L
TP53	NM_000546	45995	c.626G>A	p.R209K
TP53	NM_000546	45998	c.906G>C	p.G302G
TP53	NM_000546	46000	c.643A>C	p.S215R
TP53	NM_000546	46001	c.466_486del21	p.R156_1162delRVR AMAI
TP53	NM_000546	46015	c.1043T>A	p.L348*
TP53	NM_000546	46031	c.697C>G	p.H233D
TP53	NM_000546	46032	c.836G>T	p.G279V
TP53	NM_000546	46035	c.847C>G	p.R283G
TP53	NM_000546	46049	c.376-2A>C	p.?
TP53	NM_000546	46059	c.560-3T>G	p.?
TP53	NM_000546	46074	c.604C>T	p.R202C
TP53	NM_000546	46095	c.511delG	p.E171fs*3
TP53	NM_000546	46103	c.319T>G	p.Y107D
TP53	NM_000546	46107	c.599A>T	p.N200I
TP53	NM_000546	46114	c.389T>A	p.L130H
TP53	NM_000546	46115	c.329G>A	p.R110H
TP53	NM_000546	46124	c.466C>T	p.R156C
TP53	NM_000546	46131	c.380delC	p.P128fs*42
TP53	NM_000546	46136	c.738G>T	p.M246I
TP53	NM_000546	46163	c.534C>G	p.H178Q
TP53	NM_000546	46207	c.910A>G	p.T304A
TP53	NM_000546	46208	c.859_872del14	p.N288fs*13
TP53	NM_000546	46211	c.633T>C	p.T211T
TP53	NM_000546	46212	c.589G>T	p.V197L
TP53	NM_000546	46214	c.635T>C	p.F212S
TP53	NM_000546	46224	c.873G>A	p.K291K
TP53	NM_000546	46228	c.729G>C	p.M243I
TP53	NM_000546	46265	c.224C>G	p.P75R
TP53	NM_000546	46284	c.837G>A	p.G279G
TP53	NM_000546	46288	c.546C>T	p.C182C
TP53	NM_000546	46336	c.712T>G	p.C238G

TP53	NM_000546	46348	c.1044G>T	p.L348F
TP53	NM_000546	46393	c.520_536del17	p.R174fs*1
TP53	NM_000546	51646	c.498_499insC	p.Q167fs*14
TP53	NM_000546	53285	c.379T>A	p.S127T
TP53	NM_000546	6482	c.625_626delAG	p.R209fs*6
TP53	NM_000546	6496	c.652_654delGTG	p.V218del
TP53	NM_000546	6530	c.723delC	p.C242fs*5
TP53	NM_000546	6545	c.741_742CC>TT	p.R248W
TP53	NM_000546	6546	c.741_742CC>AT	p.N247_R248>KW
TP53	NM_000546	6549	c.743G>T	p.R248L
TP53	NM_000546	6621	c.880delG	p.E294fs*51
TP53	NM_000546	6815	c.461G>T	p.G154V
TP53	NM_000546	6900	c.376-1G>A	p.?
TP53	NM_000546	6901	c.559+1G>A	p.?
TP53	NM_000546	69195	c.714_715insT	p.N239fs*1
TP53	NM_000546	6932	c.733G>A	p.G245S
TP53	NM_000546	85574	c.291_295delCCCTT	p.S99fs*48
TP53	NM_000546	87513	c.902_903insC	p.G302fs*4
TP53	NM_000546	96575	c.625_634del10	p.R209fs*35
TP53_ENST				
000002693	ENST00000269305	111498	c.532delC	p.H178fs*69
05				
TP53_ENST				
000002693	ENST00000269305	111724	c.572_574delCTC	p.P191delP
05				
TP53_ENST				
000002693	ENST00000269305	116674	c.707A>G	p.Y236C
05				
TP53_ENST				
000002693	ENST00000269305	117398	c.527G>T	p.C176F
05				
TP53_ENST				
000002693	ENST00000269305	117949	c.574C>T	p.Q192*
05				
TP53_ENST				
000002693	ENST00000269305	118013	c.592G>T	p.E198*
05				
TP53_ENST				
000002693	ENST00000269305	120007	c.742C>T	p.R248W
05				
TP53_ENST				
000002693	ENST00000269305	121035	c.733G>A	p.G245S
05				
TP53_ENST				
000002693	ENST00000269305	121042	c.517G>C	p.V173L
05				
TP53_ENST				
000002693	ENST00000269305	126981	c.880G>T	p.E294*
05				
TP53_ENST				
000002693	ENST00000269305	129830	c.839G>A	p.R280K
05				

TP53_ENST 000002693 05	ENST00000269305	129831	c.833C>T	p.P278L
TP53_ENST 000002693 05	ENST00000269305	129848	c.535C>T	p.H179Y
TP53_ENST 000002693 05	ENST00000269305	129852	c.488A>G	p.Y163C
TP53_ENST 000002693 05	ENST00000269305	129856	c.455C>T	p.P152L
TP53_ENST 000002693 05	ENST00000269305	131478	c.747G>T	p.R249S
TP53_ENST 000002693 05	ENST00000269305	131480	c.469G>T	p.V157F
TP53_ENST 000002693 05	ENST00000269305	131534	c.559+1G>A	p.?
TP53_ENST 000002693 05	ENST00000269305	137087	c.853G>A	p.E285K
TP53_ENST 000002693 05	ENST00000269305	139044	c.832C>T	p.P278S
TP53_ENST 000002693 05	ENST00000269305	165073	c.701A>G	p.Y234C
TP53_ENST 000002693 05	ENST00000269305	165075	c.820G>T	p.V274F
TP53_ENST 000002693 05	ENST00000269305	165084	c.824G>A	p.C275Y
TP53_ENST 000002693 05	ENST00000269305	179804	c.799C>T	p.R267W
TP53_ENST 000002693 05	ENST00000269305	179806	c.734G>A	p.G245D
TP53_ENST 000002693 05	ENST00000269305	179823	c.528C>A	p.C176*
TP53_ENST 000002693 05	ENST00000269305	220766	c.319T>G	p.Y107D
TP53_ENST 000002693 05	ENST00000269305	220779	c.473G>A	p.R158H
TP53_ENST 000002693 05	ENST00000269305	220783	c.376T>G	p.Y126D

TP53_ENST 000002693 05	ENST00000269305	241998	c.638G>T	p.R213L
TP53_ENST 000002693 05	ENST00000269305	99601	c.404G>A	p.C135Y
TP53_ENST 000002693 05	ENST00000269305	99602	c.743G>A	p.R248Q
TP53_ENST 000002693 05	ENST00000269305	99618	c.637C>T	p.R213*
TP53_ENST 000002693 05	ENST00000269305	99626	c.713G>T	p.C238F
TP53_ENST 000002693 05	ENST00000269305	99641	c.517G>T	p.V173L
TP53_ENST 000002693 05	ENST00000269305	99648	c.711G>A	p.M237I
TP53_ENST 000002693 05	ENST00000269305	99668	c.586C>T	p.R196*
TP53_ENST 000002693 05	ENST00000269305	99720	c.659A>G	p.Y220C
TP53_ENST 000002693 05	ENST00000269305	99721	c.1024C>T	p.R342*
TP53_ENST 000002693 05	ENST00000269305	99725	c.832C>G	p.P278A
TP53_ENST 000002693 05	ENST00000269305	99729	c.818G>A	p.R273H
TP53_ENST 000002693 05	ENST00000269305	99914	c.524G>A	p.R175H
TP53_ENST 000002693 05	ENST00000269305	99919	c.578A>T	p.H193L
TP53_ENST 000002693 05	ENST00000269305	99924	c.856G>A	p.E286K
TP53_ENST 000002693 05	ENST00000269305	99925	c.844C>T	p.R282W
TP53_ENST 000002693 05	ENST00000269305	99929	c.329G>T	p.R110L
TP53_ENST 000002693 05	ENST00000269305	99932	c.824G>T	p.C275F

TP53_ENST 000002693 05	ENST00000269305	99933	c.817C>T	p.R273C
TP53_ENST 000002693 05	ENST00000269305	99946	c.378C>G	p.Y126*
TP53_ENST 000002693 05	ENST00000269305	99947	c.916C>T	p.R306*
TP53_ENST 000002693 05	ENST00000269305	99950	c.814G>A	p.V272M
TP53_ENST 000002693 05	ENST00000269305	99952	c.797G>T	p.G266V
TP53_ENST 000004134 65	ENST00000413465	111495	c.532delC	p.H178fs*69
TP53_ENST 000004134 65	ENST00000413465	111721	c.572_574delCTC	p.P191delP
TP53_ENST 000004134 65	ENST00000413465	116672	c.707A>G	p.Y236C
TP53_ENST 000004134 65	ENST00000413465	117395	c.527G>T	p.C176F
TP53_ENST 000004134 65	ENST00000413465	117946	c.574C>T	p.Q192*
TP53_ENST 000004134 65	ENST00000413465	118010	c.592G>T	p.E198*
TP53_ENST 000004134 65	ENST00000413465	120005	c.742C>T	p.R248W
TP53_ENST 000004134 65	ENST00000413465	121036	c.733G>A	p.G245S
TP53_ENST 000004134 65	ENST00000413465	121043	c.517G>C	p.V173L
TP53_ENST 000004134 65	ENST00000413465	129849	c.535C>T	p.H179Y
TP53_ENST 000004134 65	ENST00000413465	129853	c.488A>G	p.Y163C
TP53_ENST 000004134 65	ENST00000413465	129857	c.455C>T	p.P152L
TP53_ENST 000004134 65	ENST00000413465	131479	c.747G>T	p.R249S

TP53_ENST 000004134 65	ENST00000413465	131481	c.469G>T	p.V157F
TP53_ENST 000004134 65	ENST00000413465	131535	c.559+1G>A	p.?
TP53_ENST 000004134 65	ENST00000413465	165072	c.701A>G	p.Y234C
TP53_ENST 000004134 65	ENST00000413465	179805	c.734G>A	p.G245D
TP53_ENST 000004134 65	ENST00000413465	179822	c.528C>A	p.C176*
TP53_ENST 000004134 65	ENST00000413465	220765	c.319T>G	p.Y107D
TP53_ENST 000004134 65	ENST00000413465	220778	c.473G>A	p.R158H
TP53_ENST 000004134 65	ENST00000413465	220782	c.376T>G	p.Y126D
TP53_ENST 000004134 65	ENST00000413465	241997	c.638G>T	p.R213L
TP53_ENST 000004134 65	ENST00000413465	98964	c.517G>A	p.V173M
TP53_ENST 000004134 65	ENST00000413465	99020	c.743G>A	p.R248Q
TP53_ENST 000004134 65	ENST00000413465	99022	c.524G>A	p.R175H
TP53_ENST 000004134 65	ENST00000413465	99598	c.404G>A	p.C135Y
TP53_ENST 000004134 65	ENST00000413465	99615	c.637C>T	p.R213*
TP53_ENST 000004134 65	ENST00000413465	99624	c.713G>T	p.C238F
TP53_ENST 000004134 65	ENST00000413465	99638	c.517G>T	p.V173L
TP53_ENST 000004134 65	ENST00000413465	99646	c.711G>A	p.M237I
TP53_ENST 000004134 65	ENST00000413465	99665	c.586C>T	p.R196*

TP53_ENST 000004134 65	ENST00000413465	99718	c.659A>G	p.Y220C
TP53_ENST 000004134 65	ENST00000413465	99916	c.578A>T	p.H193L
TP53_ENST 000004134 65	ENST00000413465	99928	c.329G>T	p.R110L
TP53_ENST 000004134 65	ENST00000413465	99944	c.378C>G	p.Y126*
TP53_ENST 000004143 15	ENST00000414315	111496	c.136delC	p.H46fs*>45
TP53_ENST 000004143 15	ENST00000414315	111722	c.176_178delCTC	p.P59delP
TP53_ENST 000004143 15	ENST00000414315	117396	c.131G>T	p.C44F
TP53_ENST 000004143 15	ENST00000414315	117947	c.178C>T	p.Q60*
TP53_ENST 000004143 15	ENST00000414315	118011	c.196G>T	p.E66*
TP53_ENST 000004143 15	ENST00000414315	121045	c.121G>C	p.V41L
TP53_ENST 000004143 15	ENST00000414315	129851	c.139C>T	p.H47Y
TP53_ENST 000004143 15	ENST00000414315	129855	c.92A>G	p.Y31C
TP53_ENST 000004143 15	ENST00000414315	129859	c.59C>T	p.P20L
TP53_ENST 000004143 15	ENST00000414315	131483	c.73G>T	p.V25F
TP53_ENST 000004143 15	ENST00000414315	131537	c.163+1G>A	p.?
TP53_ENST 000004143 15	ENST00000414315	179824	c.132C>A	p.C44*
TP53_ENST 000004143 15	ENST00000414315	220780	c.77G>A	p.R26H
TP53_ENST 000004143 15	ENST00000414315	241999	c.242G>T	p.R81L

TP53_ENST 000004143 15	ENST00000414315	98965	c.121G>A	p.V41M
TP53_ENST 000004143 15	ENST00000414315	99023	c.128G>A	p.R43H
TP53_ENST 000004143 15	ENST00000414315	99599	c.8G>A	p.C3Y
TP53_ENST 000004143 15	ENST00000414315	99616	c.241C>T	p.R81*
TP53_ENST 000004143 15	ENST00000414315	99639	c.121G>T	p.V41L
TP53_ENST 000004143 15	ENST00000414315	99666	c.190C>T	p.R64*
TP53_ENST 000004143 15	ENST00000414315	99917	c.182A>T	p.H61L
TP53_ENST 000005458 58	ENST00000545858	111497	c.253delC	p.H85fs*69
TP53_ENST 000005458 58	ENST00000545858	111723	c.293_295delCTC	p.P98delP
TP53_ENST 000005458 58	ENST00000545858	116673	c.428A>G	p.Y143C
TP53_ENST 000005458 58	ENST00000545858	117397	c.248G>T	p.C83F
TP53_ENST 000005458 58	ENST00000545858	117948	c.295C>T	p.Q99*
TP53_ENST 000005458 58	ENST00000545858	118012	c.313G>T	p.E105*
TP53_ENST 000005458 58	ENST00000545858	120006	c.463C>T	p.R155W
TP53_ENST 000005458 58	ENST00000545858	121037	c.454G>A	p.G152S
TP53_ENST 000005458 58	ENST00000545858	121044	c.238G>C	p.V80L
TP53_ENST 000005458 58	ENST00000545858	129850	c.256C>T	p.H86Y
TP53_ENST 000005458 58	ENST00000545858	129854	c.209A>G	p.Y70C

TP53_ENST 000005458 58	ENST00000545858	129858	c.176C>T	p.P59L
TP53_ENST 000005458 58	ENST00000545858	131482	c.190G>T	p.V64F
TP53_ENST 000005458 58	ENST00000545858	131536	c.280+1G>A	p.?
TP53_ENST 000005458 58	ENST00000545858	165074	c.422A>G	p.Y141C
TP53_ENST 000005458 58	ENST00000545858	179807	c.455G>A	p.G152D
TP53_ENST 000005458 58	ENST00000545858	179825	c.249C>A	p.C83*
TP53_ENST 000005458 58	ENST00000545858	220781	c.194G>A	p.R65H
TP53_ENST 000005458 58	ENST00000545858	220784	c.97T>G	p.Y33D
TP53_ENST 000005458 58	ENST00000545858	242000	c.359G>T	p.R120L
TP53_ENST 000005458 58	ENST00000545858	98966	c.238G>A	p.V80M
TP53_ENST 000005458 58	ENST00000545858	99021	c.464G>A	p.R155Q
TP53_ENST 000005458 58	ENST00000545858	99024	c.245G>A	p.R82H
TP53_ENST 000005458 58	ENST00000545858	99600	c.125G>A	p.C42Y
TP53_ENST 000005458 58	ENST00000545858	99617	c.358C>T	p.R120*
TP53_ENST 000005458 58	ENST00000545858	99625	c.434G>T	p.C145F
TP53_ENST 000005458 58	ENST00000545858	99640	c.238G>T	p.V80L
TP53_ENST 000005458 58	ENST00000545858	99647	c.432G>A	p.M144I
TP53_ENST 000005458 58	ENST00000545858	99667	c.307C>T	p.R103*

TP53_ENST 000005458 58	ENST00000545858	99719	c.380A>G	p.Y127C
TP53_ENST 000005458 58	ENST00000545858	99918	c.299A>T	p.H100L
TP53_ENST 000005458 58	ENST00000545858	99945	c.99C>G	p.Y33*
VHL	NM_000551.2	14279	c.405delA	p.L135fs*24
VHL	NM_000551.2	14284	c.429C>G	p.D143E
VHL	NM_000551.2	14302	c.391delA	p.N131fs*28
VHL	NM_000551.2	14305	c.266T>A	p.L89H
VHL	NM_000551.2	14307	c.496G>A	p.V166I
VHL	NM_000551.2	14309	c.478G>A	p.E160K
VHL	NM_000551.2	14310	c.349T>C	p.W117R
VHL	NM_000551.2	14311	c.499C>T	p.R167W
VHL	NM_000551.2	14312	c.353T>C	p.L118P
VHL	NM_000551.2	14325	c.294C>G	p.Y98*
VHL	NM_000551.2	14328	c.351G>T	p.W117C
VHL	NM_000551.2	14346	c.266T>C	p.L89P
VHL	NM_000551.2	14348	c.301C>T	p.L101L
VHL	NM_000551.2	14349	c.259_264delGTATGG	p.V87_W88del
VHL	NM_000551.2	14355	c.488T>C	p.L163P
VHL	NM_000551.2	14356	c.394C>T	p.Q132*
VHL	NM_000551.2	14362	c.383T>G	p.L128R
VHL	NM_000551.2	14368	c.473T>A	p.L158Q
VHL	NM_000551.2	14373	c.400G>T	p.E134*
VHL	NM_000551.2	14374	c.513G>C	p.K171N
VHL	NM_000551.2	14375	c.343C>T	p.H115Y
VHL	NM_000551.2	14376	c.464-1G>A	p.?
VHL	NM_000551.2	14382	c.245G>C	p.R82P
VHL	NM_000551.2	14383	c.413C>G	p.P138R
VHL	NM_000551.2	14386	c.309delT	p.G104fs*55
VHL	NM_000551.2	14387	c.473T>C	p.L158P
VHL	NM_000551.2	14390	c.269A>T	p.N90I
VHL	NM_000551.2	14391	c.469delA	p.T157fs*2
VHL	NM_000551.2	14392	c.377A>G	p.D126G
VHL	NM_000551.2	14393	c.311delG	p.G104fs*55
VHL	NM_000551.2	14397	c.490C>T	p.Q164*
VHL	NM_000551.2	14399	c.351G>A	p.W117*
VHL	NM_000551.2	14404	c.266T>G	p.L89R
VHL	NM_000551.2	14405	c.257C>A	p.P86H
VHL	NM_000551.2	14406	c.404delT	p.L135fs*24
VHL	NM_000551.2	14407	c.388G>C	p.V130L
VHL	NM_000551.2	14408	c.485G>A	p.C162Y
VHL	NM_000551.2	14410	c.440delT	p.F148fs*11
VHL	NM_000551.2	14412	c.431delG	p.G144fs*15
VHL	NM_000551.2	14413	c.426_429delTGAC	p.G144fs*14
VHL	NM_000551.2	14414	c.310delG	p.G104fs*55
VHL	NM_000551.2	14415	c.381delG	p.L128fs*31
VHL	NM_000551.2	14419	c.488delT	p.L163fs*7
VHL	NM_000551.2	14437	c.464-1G>C	p.?
VHL	NM_000551.2	144971	c.244C>G	p.R82G

VHL	NM_000551.2	17612	c.481C>T	p.R161*
VHL	NM_000551.2	17644	c.363T>G	p.D121E
VHL	NM_000551.2	17647	c.414delA	p.S139fs*20
VHL	NM_000551.2	17648	c.423delT	p.N141fs*18
VHL	NM_000551.2	17649	c.436delC	p.P146fs*13
VHL	NM_000551.2	17657	c.472C>G	p.L158V
VHL	NM_000551.2	17658	c.286C>T	p.Q96*
VHL	NM_000551.2	17662	c.492G>T	p.Q164H
VHL	NM_000551.2	17676	c.498delC	p.R167fs*3
VHL	NM_000551.2	17678	c.344delA	p.H115fs*44
VHL	NM_000551.2	17699	c.284C>G	p.P95R
VHL	NM_000551.2	17721	c.241C>T	p.P81S
VHL	NM_000551.2	17735	c.444delT	p.F148fs*11
VHL	NM_000551.2	17752	c.343C>A	p.H115N
VHL	NM_000551.2	17757	c.390delT	p.N131fs*28
VHL	NM_000551.2	17759	c.393_396delCCA	p.N131fs*27
VHL	NM_000551.2	17764	c.408delT	p.F136fs*23
VHL	NM_000551.2	17765	c.409delG	p.V137fs*22
VHL	NM_000551.2	17767	c.417T>A	p.S139S
VHL	NM_000551.2	17769	c.437delC	p.P146fs*13
VHL	NM_000551.2	17770	c.501delG	p.S168fs*2
VHL	NM_000551.2	17786	c.497T>G	p.V166G
VHL	NM_000551.2	17805	c.471T>A	p.T157T
VHL	NM_000551.2	17807	c.264G>C	p.W88C
VHL	NM_000551.2	17837	c.506T>C	p.L169P
VHL	NM_000551.2	17844	c.464delT	p.V155fs*4
VHL	NM_000551.2	17857	c.395delA	p.T133fs*26
VHL	NM_000551.2	17859	c.254T>C	p.L85P
VHL	NM_000551.2	17862	c.350G>A	p.W117*
VHL	NM_000551.2	17881	c.262T>A	p.W88R
VHL	NM_000551.2	17882	c.269delA	p.N90fs*69
VHL	NM_000551.2	17885	c.293A>T	p.Y98F
VHL	NM_000551.2	17886	c.296delC	p.P99fs*60
VHL	NM_000551.2	17895	c.369delG	p.T124fs*35
VHL	NM_000551.2	17904	c.422_423insA	p.N141fs*3
VHL	NM_000551.2	17909	c.482G>C	p.R161P
VHL	NM_000551.2	17913	c.497T>A	p.V166D
VHL	NM_000551.2	17953	c.262T>C	p.W88R
VHL	NM_000551.2	17956	c.291delC	p.Y98fs*61
VHL	NM_000551.2	17958	c.294C>A	p.Y98*
VHL	NM_000551.2	17967	c.365C>A	p.A122E
VHL	NM_000551.2	17974	c.438T>C	p.P146P
VHL	NM_000551.2	17982	c.496G>T	p.V166F
VHL	NM_000551.2	17983	c.500G>A	p.R167Q
VHL	NM_000551.2	17988	c.341-1G>T	p.?
VHL	NM_000551.2	18009	c.362A>G	p.D121G
VHL	NM_000551.2	18014	c.405_406insT	p.V137fs*7
VHL	NM_000551.2	18022	c.357C>G	p.F119L
VHL	NM_000551.2	18023	c.486C>G	p.C162W
VHL	NM_000551.2	18025	c.470C>T	p.T157I
VHL	NM_000551.2	18028	c.257C>T	p.P86L
VHL	NM_000551.2	18051	c.424delG	p.V142fs*17
VHL	NM_000551.2	18059	c.406delT	p.F136fs*23
VHL	NM_000551.2	18070	c.263G>A	p.W88*

VHL	NM_000551.2	18073	c.484T>C	p.C162R
VHL	NM_000551.2	18075	c.478G>T	p.E160*
VHL	NM_000551.2	18080	c.277G>C	p.G93R
VHL	NM_000551.2	18192	c.350G>T	p.W117L
VHL	NM_000551.2	18212	c.491A>C	p.Q164P
VHL	NM_000551.2	18215	c.426delT	p.V142fs*17
VHL	NM_000551.2	18255	c.302T>C	p.L101P
VHL	NM_000551.2	18276	c.406T>G	p.F136V
VHL	NM_000551.2	18286	c.390_391insT	p.N131fs*2
VHL	NM_000551.2	18290	c.341-1G>A	p.?
VHL	NM_000551.2	18346	c.341G>C	p.G114A
VHL	NM_000551.2	18350	c.256C>T	p.P86S
VHL	NM_000551.2	18379	c.505C>T	p.L169L
VHL	NM_000551.2	18415	c.263G>C	p.W88S
VHL	NM_000551.2	22469	c.467delA	p.Y156fs*3
VHL	NM_000551.2	249586	c.412_425delCCATCTCTCAATG T	p.P138fs*1
VHL	NM_000551.2	25675	c.464-1G>T	p.?
VHL	NM_000551.2	25676	c.485G>T	p.C162F
VHL	NM_000551.2	25682	c.430G>T	p.G144*
VHL	NM_000551.2	25719	c.383T>C	p.L128P
VHL	NM_000551.2	25720	c.393C>G	p.N131K
VHL	NM_000551.2	26785	c.263delG	p.W88fs*71
VHL	NM_000551.2	30295	c.341-2A>G	p.?
VHL	NM_000551.2	34019	c.361G>T	p.D121Y
VHL	NM_000551.2	34030	c.477delA	p.E160fs*10

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