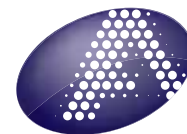


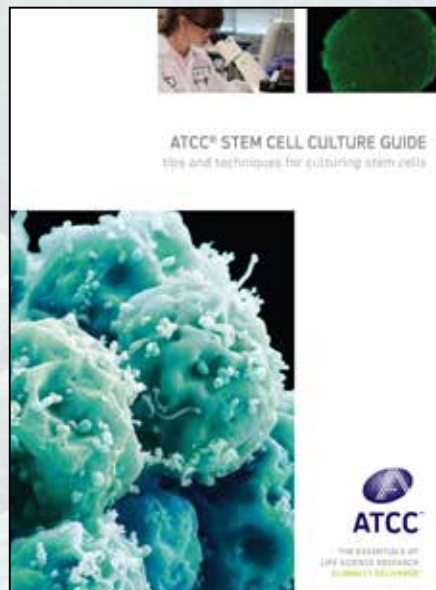
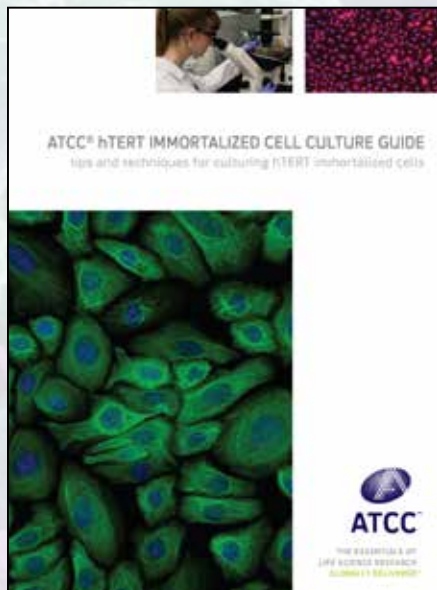
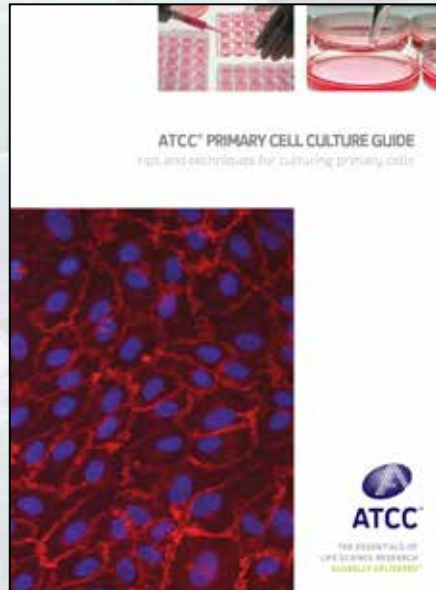
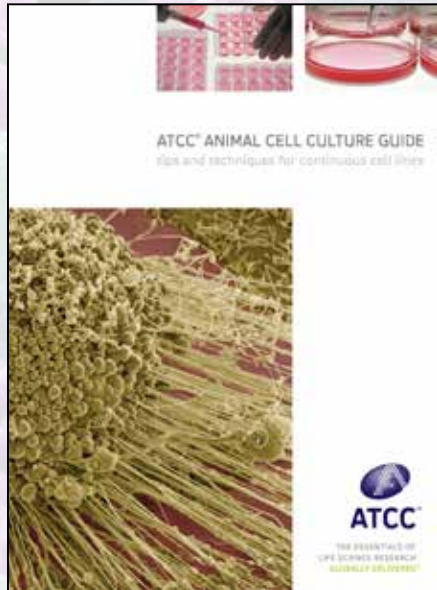
ATCC® CELL LINES BY GENE MUTATION



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Cell Lines Organized by Specific Gene Mutation

Tumor cell lines become more powerful tools for cancer research and drug discovery when the genetic abnormalities that drive their phenotype are known. ATCC now offers our reliable, authenticated tumor cell lines annotated with gene mutation information from the Sanger Institute COSMIC database. This guide organizes our ATCC tumor cell lines according to gene of interest, and provides information for each line about the specific mutation, predicted protein sequence, zygosity, and tumor histology. We have collected this information together, so that you can quickly select the cell lines that best suit your research needs.

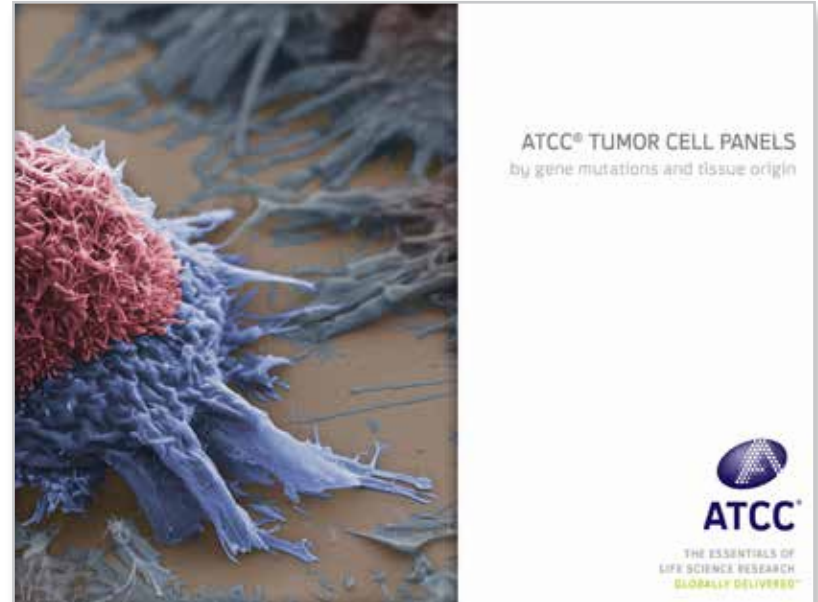
Table of Contents

APC	1
BRAF	3
CDKN2A	5
CTNNB1	10
EGFR	11
PIK3CA	12
PIK3R1	14
PTEN	15
RAS	18
RB1	22
SMAD4	25
TP53	27

Tissue-Specific Tumor Cell Panels

The value of tumor cell lines, as research models and drug discovery tools, is greatly enhanced when there is an understanding of the underlying genetic abnormalities that drive their phenotype. ATCC has taken the first step for your research by annotating our tumor cell lines with gene mutation data from the Sanger Institute COSMIC database, and additional in-house testing.

Download the ATCC Tumor Cell Panels brochure at www.atcc-guides.org/tcp



"The mutation data was obtained from the Sanger Institute Catalogue Of Somatic Mutations In Cancer web site, <http://www.sanger.ac.uk/genetics/CGP/cosmic/>. ATCC provides these data in good faith, but makes no warranty, express or implied, nor assumes any legal liability or responsibility for any purpose for which the data are used.



APC

Adenomatous polyposis coli (APC) is a tumor suppressor gene that plays a critical role in both cell division and adhesion, through the regulation of the Wnt-pathway protein, β -catenin. Mutations in the APC gene have been implicated in colon, lung and esophageal cancers, and they can lead to impaired β -catenin regulation, altered cell migration and chromosomal instability.

Tumor Source	Histology	Zygosity	Gene Sequence [†]	Protein Sequence [†]	Name	ATCC [®] No.
BREAST						
metastasis, skin	Carcinoma, ductal	homozygous	c.4729G>T	p.E1577*	DU4475	HTB-123™
CAECUM						
primary	Carcinoma	heterozygous	c.2365C>T	p.Q789*	LS411N	CRL-2159™
primary	Carcinoma	homozygous	c.3927_3931delAAAGA	p.E1309fs*4	LS1034	CRL-2158™
primary	Carcinoma	heterozygous	c.4666_4667insA	p.T1556fs*3	LS411N	CRL-2159™
metastasis, common duct node	Adenocarcinoma	heterozygous	c.4285C>T	p.Q1429*	NCI-H747	CCL-252™
metastasis, common duct node	Adenocarcinoma	heterozygous	c.481C>T	p.Q161*	NCI-H747	CCL-252™
COLON						
primary	Adenocarcinoma	heterozygous	c.790C>T	p.Q264*	SW1116	CCL-233™
primary	Adenocarcinoma	heterozygous	c.1873C>T	p.Q625*	LS123	CCL-255™
primary	Adenocarcinoma	homozygous	c.2432C>G	p.S811*	COLO 320HSR	CCL-220.1™
primary	Carcinoma	heterozygous	c.2557G>T	p.E853*	HT-29	HTB-38™
primary	Adenocarcinoma	heterozygous	c.3340C>T	p.R1114*	SW948	CCL-237™
primary	Adenocarcinoma	homozygous	c.4099C>T	p.Q1367*	C2BBe1	CRL-2102™
primary	Adenocarcinoma	homozygous	c.4248delC	p.I1417fs*2	HCT-15	CCL-225™
primary	Adenocarcinoma	heterozygous	c.4285C>T	p.Q1429*	SW948	CCL-237™
primary	Adenocarcinoma	heterozygous	c.4287_4296delAACCATGCCA	p.Q1429fs*41	SW1116	CCL-233™
primary	Adenocarcinoma	homozygous	c.4348C>T	p.R1450*	SW1417	CCL-238™
primary	Adenocarcinoma	heterozygous	c.4348C>T	p.R1450*	LS123	CCL-255™
primary	Carcinoma	heterozygous	c.4666_4667insA	p.T1556fs*3	HT-29	HTB-38™
primary	Adenocarcinoma	heterozygous	c.6496C>T	p.R2166*	HCT-15	CCL-225™
metastasis, ovary	Adenocarcinoma	homozygous	c.2926_2927insA	p.R976fs*9	SW 626	HTB-78™
metastasis, lymph node	Adenocarcinoma	heterozygous	c.3340C>T	p.R1114*	LoVo	CCL-229™
metastasis, lymph node	Adenocarcinoma	homozygous	c.4012C>T	p.Q1338*	SW620	CCL-227™
metastasis, lymph node	Adenocarcinoma	heterozygous	c.4290delC	p.M1431fs*42	LoVo	CCL-229™

[†]For a description of the sequence variation nomenclature please refer to: *den Dunnen JT and Antonarakis SE (2000), Hum. Mutat. 15:7-12.*

Tumor Source	Histology	Zygoty	Gene Sequence [†]	Protein Sequence [†]	Name	ATCC [®] No.
metastasis, lung	Carcinoma	homozygous	c.4464delA	p.L1488fs*19	T84	CCL-248™
metastasis, ascites	Adenocarcinoma	heterozygous	c.3266delT	p.F1089fs*37	SK-CO-1	HTB-39™
metastasis, ascites	Adenocarcinoma	heterozygous	c.4328delC	p.P1443fs*30	SK-CO-1	HTB-39™
metastasis, ascites	Adenocarcinoma	homozygous	c.4666_4667insA	p.T1556fs*3	COLO 205	CCL-222™

LUNG

primary	Adenocarcinoma, large cell	homozygous	c.3317_3318insG	p.A1107fs*12	NCI-H1581	CRL-5878™
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RECTUM

primary	Adenocarcinoma	heterozygous	c.637C>T	p.R213*	SW837	CCL-235™
primary	Adenocarcinoma	homozygous	c.1354_1355delGT	p.V452fs*7	SW1463	CCL-234™
primary	Adenocarcinoma	heterozygous	c.4348C>T	p.R1450*	SW837	CCL-235™

UTERUS

primary	Leiomyosarcoma	heterozygous	c.3286C>T	p.Q1096*	SK-UT-1	HTB-114™
primary	Leiomyosarcoma	heterozygous	c.4666delA	p.T1556fs*9	SK-UT-1	HTB-114™



ATCC CELL CULTURE MEDIA

Cells are highly sensitive to their media environment, and may behave differently when their media is changed or when they are thawed into a media different from the one in which they were frozen. ATCC media will keep your cells behaving as expected. Our media is formulated with carefully adjusted buffers, glucose, vitamins and amino acids. The collection includes the “classic” media formulations, and media specially formulated to optimize growth of hybridoma, primary, or stem cells in culture. For more information go to www.atcc.org.

[†]For a description of the sequence variation nomenclature please refer to: *den Dunnen JT and Antonarakis SE (2000), Hum. Mutat. 15:7-12.*



BRAF

BRAF is a proto-oncogene encoding B-RAF, a serine/threonine kinase of the RAF family that acts downstream of RAS and upstream of MEK in the MAPK/ERK signaling pathway. B-RAF mediates cell division, proliferation and differentiation in response to a host of stimuli. Mutations in B-RAF lead to excessive cellular proliferation and enhanced survival, and often underlie birth defects, thyroid and skin cancer.

Tumor Source	Histology	Zygosity	Gene Sequence [†]	Protein Sequence [†]	Name	ATCC [®] No.
BRAIN						
primary	Glioblastoma, multiforme	heterozygous	c.1799T>A	p.V600E	DBTRG-05MG	CRL-2020™
BREAST						
metastasis, skin	Carcinoma, ductal	heterozygous	c.1799T>A	p.V600E	DU4475	HTB-123™
metastasis, pleural effusion	Adenocarcinoma	heterozygous	c.1391G>T	p.G464V	MDA-MB-231	HTB-26™
CAECUM						
primary	Carcinoma	homozygous	c.1799T>A	p.V600E	LS411N	CRL-2159™
metastasis, abdominal wall	Adenocarcinoma	heterozygous	c.1786G>C	p.G596R	NCI-H508	CCL-253™
COLON						
primary	Adenocarcinoma	heterozygous	c.1799T>A	p.V600E	SW1417	CCL-238™
primary	Carcinoma, epithelial	heterozygous	c.1799T>A	p.V600E	RKO	CRL-2577™
primary	Carcinoma	heterozygous	c.1799T>A	p.V600E	HT-29	HTB-38™
metastasis, ascites	Adenocarcinoma	heterozygous	c.1799T>A	p.V600E	COLO 205	CCL-222™
CONNECTIVE TISSUE						
primary	Liposarcoma	heterozygous	c.1799T>A	p.V600E	SW 872	HTB-92™
LIVER						
metastasis, ascites	Adenocarcinoma	heterozygous	c.1799T>A	p.V600E	SK-HEP-1	HTB-52™
LUNG						
primary	Adenocarcinoma	homozygous	c.1406G>C	p.G469A	NCI-H1395	CRL-5868™
metastasis, pleural effusion	Adenocarcinoma	heterozygous	c.1397G>T	p.G466V	NCI-H1666	CRL-5885™
metastasis, lymph node	Adenocarcinoma, non-small cell	heterozygous	c.1789C>G	p.L597V	NCI-H2087	CRL-5922™
metastasis, liver	Adenocarcinoma, non-small cell	heterozygous	c.1406G>C	p.G469A	NCI-H1755	CRL-5892™
metastasis, ascites	Adenocarcinoma, non-small cell	homozygous	c.1454_1469>A	p.L485_P490>Y	NCI-H2405	CRL-5944™

[†]For a description of the sequence variation nomenclature please refer to: *den Dunnen JT and Antonarakis SE (2000), Hum. Mutat. 15:7-12.*

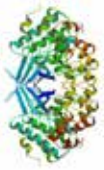
Tumor Source	Histology	Zygosity	Gene Sequence [†]	Protein Sequence [†]	Name	ATCC® No.
MUSCLE						
primary	Rhabdomyosarcoma	heterozygous	c.1799T>A	p.V600E	A-673	CRL-1598™
SKIN						
primary	Melanoma, malignant	heterozygous	c.1799T>A	p.V600E	G-361	CRL-1424™
primary	Melanoma, amelanotic	heterozygous	c.1799T>A	p.V600E	C32	CRL-1585™
primary	Melanoma, malignant	homozygous	c.1799T>A	p.V600E	A-375	CRL-1619™
primary	Melanoma, malignant	heterozygous	c.1799T>A	p.V600E	COLO 829	CRL-1974™
primary	Melanoma	heterozygous	c.1799T>A	p.V600E	A101D	CRL-7898™
primary	Melanoma, malignant	homozygous	c.1799T>A	p.V600E	HT-144	HTB-63™
primary	Melanoma, malignant	heterozygous	c.1799T>A	p.V600E	Malme-3M	HTB-64™
primary	Melanoma, malignant	homozygous	c.1799T>A	p.V600E	SK-MEL-28	HTB-72™
metastasis, thoracic duct	Melanoma, malignant	heterozygous	c.1799T>A	p.V600E	SK-MEL-1	HTB-67™
metastasis, pleural effusion	Melanoma	homozygous	c.1799T>A	p.V600E	SH-4	CRL-7724™
metastasis, pleural effusion	Melanoma, amelanotic	heterozygous	c.1799T>A	p.V600E	MDA-MB-435S	HTB-129™
metastasis, lymph node	Melanoma, malignant	heterozygous	c.1799T>A	p.V600E	A2058	CRL-11147™
metastasis, lymph node	Melanoma, malignant	heterozygous	c.1799T>A	p.V600E	RPMI-7951	HTB-66™
metastasis, lymph node	Melanoma, malignant	heterozygous	c.1799T>A	p.V600E	SK-MEL-3	HTB-69™
metastasis, lymph node	Melanoma, malignant	heterozygous	c.1799T>A	p.V600E	SK-MEL-5	HTB-70™
metastasis, lymph node	Melanoma, malignant	heterozygous	c.1799T>A	p.V600E	SK-MEL-24	HTB-71™
SYNOVIUM						
primary	Liposarcoma	heterozygous	c.1799T>A	p.V600E	SW 982	HTB-93™
UNKNOWN						
metastasis, lung	Histiocytoma, fibrous	heterozygous	c.1799T>A	p.V600E	GCT	TIB-223™



ATCC SERUM

Animal serum contains a variety of growth factors, cytokines, and proteins required for *in vitro* cell culture. When used at appropriate concentrations, serum supplies many of the defined and undefined components shown to satisfy the specific metabolic requirements of cultured cells. For more information go to www.atcc.org.

[†]For a description of the sequence variation nomenclature please refer to: *den Dunnen JT and Antonarakis SE (2000), Hum. Mutat. 15:7-12.*



CDKN2A

Cyclin-dependent kinase inhibitor 2A (CDKN2A) is a tumor suppressor gene, encoding three splice variants, two of which serve as inhibitors of the CDK4 kinase and are capable of inducing arrest at the G1 phase of the cell cycle.

Tumor Source	Histology	Zygosity	Gene Sequence [†]	Protein Sequence [†]	Name	ATCC® No.
BONE						
primary	Osteosarcoma	homozygous	c.1_471del471	p.0?	HOS	CRL-1543™
primary	Osteosarcoma	homozygous	c.1_471del471	p.0?	MG-63	CRL-1427™
metastasis, bone marrow	Sarcoma	homozygous	c.1_471del471	p.0?	VA-ES-BJ	CRL-2138™
BONE MARROW						
primary	Leukemia, acute lymphoblastic	homozygous	c.1_471del471	p.0?	RS4;11	CRL-1873™
metastasis, pleural effusion	Leukemia, chronic myelogenous	homozygous	c.1_471del471	p.0?	K-562	CCL-243™
BRAIN						
primary	Astrocytoma	homozygous	c.1_471del471	p.0?	SW 1088	HTB-12™
primary	Glioblastoma	homozygous	c.1_471del471	p.0?	A172	CRL-1620™
primary	Glioblastoma, astrocytoma	homozygous	c.1_471del471	p.0?	U-87 MG	HTB-14™
primary	Glioblastoma, astrocytoma	homozygous	c.1_471del471	p.0?	U-118 MG	HTB-15™
primary	Glioblastoma, multiforme	homozygous	c.1_471del471	p.0?	T98G	CRL-1690™
primary	Glioblastoma, multiforme	homozygous	c.1_471del471	p.0?	DBTRG-05MG	CRL-2020™
primary	Neuroglioma	homozygous	c.1_471del471	p.0?	H4	HTB-148™
BREAST						
primary	Carcinoma	homozygous	c.1_471del471	p.0?	BT-20	HTB-19™
primary	Carcinoma, primary acantholytic squamous cell	homozygous	c.1_471del471	p.0?	HCC1806	CRL-2335™
primary	Carcinoma, primary ductal	homozygous	c.1_471del471	p.0?	HCC38	CRL-2314™
primary	Carcinoma, primary ductal	homozygous	c.1_471del471	p.0?	HCC1395	CRL-2324™
metastasis, pleural effusion	Adenocarcinoma	homozygous	c.1_471del471	p.0?	MCF7	HTB-22™
metastasis, pleural effusion	Adenocarcinoma	homozygous	c.1_471del471	p.0?	MDA-MB-231	HTB-26™
metastasis, brain	Adenocarcinoma	homozygous	c.156G>C	p.M52I	MDA-MB-361	HTB-27™
CEREBELLUM						
primary	Medulloblastoma, desmoplastic	homozygous	c.1_471del471	p.0?	Daoy	HTB-186™

[†]For a description of the sequence variation nomenclature please refer to: *den Dunnen JT and Antonarakis SE (2000), Hum. Mutat. 15:7-12.*

Tumor Source	Histology	Zygoty	Gene Sequence [†]	Protein Sequence [†]	Name	ATCC® No.
COLON						
primary	Carcinoma	homozygous	c.68_69insG	p.R24fs*20	HCT 116	CCL-247™
CONNECTIVE TISSUE						
primary	Fibrosarcoma	homozygous	c.1_471del471	p.0?	HT-1080	CCL-121™
primary	Liposarcoma	homozygous	c.237_238CC>TT	p.R80*	SW 872	HTB-92™
KIDNEY						
primary	Adenocarcinoma, renal cell	homozygous	c.1_150del150	p.?	786-O	CRL-1932™
primary	Adenocarcinoma, renal cell	homozygous	c.1_471del471	p.0?	769-P	CRL-1933™
primary	Carinoma	homozygous	c.1_471del471	p.0?	A-498	HTB-44™
metastasis, skin	Carcinoma, clear cell	homozygous	c.1_471del471	p.0?	Caki-1	HTB-46™
metastasis, pleural effusion	Adenocarcinoma, renal cell	homozygous	c.1_471del471	p.0?	ACHN	CRL-1611™
metastasis, pleural effusion	Tumor, Wilms'	homozygous	c.1_471del471	p.0?	SK-NEP-1	HTB-48™
LIVER						
primary	Carcinoma, hepatocellular	homozygous	c.1_471del471	p.0?	SNU-449	CRL-2234™
primary	Carcinoma, hepatocellular, pleomorphic	homozygous	c.1_471del471	p.0?	SNU-387	CRL-2237™
primary	Carcinoma, hepatocellular	homozygous	c.334C>G	p.R112G	PLC/PRF/5	CRL-8024™
metastasis, ascites	Adenocarcinoma	homozygous	c.1_471del471	p.0?	SK-HEP-1	HTB-52™
LUNG						
primary	Adenocarcinoma, non-small cell	homozygous	c.1_457del457	p.?	NCI-H1793	CRL-5896™
primary	Adenocarcinoma	homozygous	c.1_471del471	p.0?	SK-LU-1	HTB-57™
primary	Adenocarcinoma, non-small cell	homozygous	c.1_471del471	p.0?	NCI-H1563	CRL-5875™
primary	Adenocarcinoma, non-small cell	homozygous	c.1_471del471	p.0?	NCI-H1651	CRL-5884™
primary	Adenocarcinoma, non-small cell	homozygous	c.1_471del471	p.0?	NCI-H1838	CRL-5899™
primary	Adenocarcinoma, non-small cell	homozygous	c.1_471del471	p.0?	NCI-H2228	CRL-5935™
primary	Carcinoid	homozygous	c.1_471del471	p.0?	UMC-11	CRL-5975™
primary	Carcinoma	homozygous	c.1_471del471	p.0?	A-427	HTB-53™
primary	Carcinoma	homozygous	c.1_471del471	p.0?	A549	CCL-185™
primary	Carcinoma, alveolar cell	homozygous	c.1_471del471	p.0?	SW 1573	CRL-2170™
primary	Carcinoma, small cell	homozygous	c.1_471del471	p.0?	NCI-H1417	CRL-5869™
primary	Carcinoma, squamous cell	homozygous	c.1_471del471	p.0?	NCI-H2170	CRL-5928™
primary	Carcinoma, squamous cell	homozygous	c.1_471del471	p.0?	SW 900	HTB-59™

[†]For a description of the sequence variation nomenclature please refer to: *den Dunnen JT and Antonarakis SE (2000), Hum. Mutat. 15:7-12.*

Tumor Source	Histology	Zygosity	Gene Sequence [†]	Protein Sequence [†]	Name	ATCC® No.
primary	Carcinoma, squamous cell	homozygous	c.134delG	p.G45fs*8	NCI-H520	HTB-182™
primary	Adenocarcinoma, non-small cell	homozygous	c.205G>T	p.E69*	NCI-H1975	CRL-5908™
primary	Adenocarcinoma, squamous cell	homozygous	c.251A>T	p.D84V	NCI-H1703	CRL-5889™
metastasis, pleural effusion	Adenocarcinoma, non-small cell	homozygous	c.1_150del150	p.?	NCI-H2122	CRL-5985™
metastasis, pleural effusion	Carcinoma, large cell	homozygous	c.1_457del457	p.?	NCI-H460	HTB-177™
metastasis, pleural effusion	Adenocarcinoma	homozygous	c.1_471del471	p.0?	NCI-H1650	CRL-5883™
metastasis, pleural effusion	Adenocarcinoma	homozygous	c.1_471del471	p.0?	NCI-H1666	CRL-5885™
metastasis, pleural effusion	Adenocarcinoma, non-small cell	homozygous	c.1_471del471	p.0?	NCI-H1437	CRL-5872™
metastasis, pleural effusion	Carcinoma, non-small cell	homozygous	c.1_471del471	p.0?	NCI-H2126	CCL-256™
metastasis, pleural effusion	Carcinoma, squamous cell	homozygous	c.1_471del471	p.0?	SK-MES-1	HTB-58™
metastasis, lymph node	Adenocarcinoma	homozygous	c.1_471del471	p.0?	NCI-H1648	CRL-5882™
metastasis, lymph node	Adenocarcinoma, non-small cell	homozygous	c.1_471del471	p.0?	NCI-H838	CRL-5844™
metastasis, lymph node	Carcinoma, mucoepidermoid	homozygous	c.1_471del471	p.0?	NCI-H292	CRL-1848™
metastasis, lymph node	Carcinoma, large cell	homozygous	c.457+1G>T	p.?	NCI-H661	HTB-183™
metastasis, liver	Adenocarcinoma, non-small cell	homozygous	c.1_471del471	p.0?	NCI-H1755	CRL-5892™
metastasis, ascites	Adenocarcinoma, non-small cell	homozygous	c.1_150del150	p.?	NCI-H2405	CRL-5944™

LYMPHOID

primary	Leukemia, acute lymphoblastic	homozygous	c.1_471del471	p.0?	MOLT-4	CRL-1582™
primary	Leukemia, acute lymphocytic	homozygous	c.1_471del471	p.0?	Reh	CRL-8286™
primary	Lymphoma, cutaneous	homozygous	c.1_471del471	p.0?	H9	HTB-176™
metastasis, pleural effusion	Lymphoma, KSHV positive	homozygous	c.1_457del457	p.?	BC-3	CRL-2277™
metastasis, pleural effusion	Lymphoma, T-cell lymphoblastic	homozygous	c.1_471del471	p.0?	SUP-T1	CRL-1942™

MUSCLE

primary	Rhabdomyosarcoma	homozygous	c.1_471del471	p.0?	A-673	CRL-1598™
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OVARY

metastasis, ascites	Adenocarcinoma	homozygous	c.1_457del457	p.?	SK-OV-3	HTB-77™
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PANCREAS

primary	Adenocarcinoma	homozygous	c.1_471del471	p.0?	Panc 03.27	CRL-2549™
primary	Adenocarcinoma	homozygous	c.1_471del471	p.0?	Panc 08.13	CRL-2551™
primary	Adenocarcinoma	homozygous	c.1_471del471	p.0?	BxPC-3	CRL-1687™
primary	Carcinoma	homozygous	c.1_471del471	p.0?	MIA PaCa-2	CRL-1420™
metastasis, spleen	Adenocarcinoma	homozygous	c.1_471del471	p.0?	SW 1990	CRL-2172™

[†]For a description of the sequence variation nomenclature please refer to: *den Dunnen JT and Antonarakis SE (2000), Hum. Mutat. 15:7-12.*

Tumor Source	Histology	Zygoty	Gene Sequence [†]	Protein Sequence [†]	Name	ATCC [®] No.
metastasis, ascites	Adenocarcinoma	homozygous	c.233_234delTC	p.L78fs*41	AsPC-1	CRL-1682™
metastasis, ascites	Adenocarcinoma	homozygous	c.85_101del17	p.R29fs*9	HPAF-II	CRL-1997™

PERIPHERAL BLOOD

primary	Leukemia, acute lymphoblastic	homozygous	c.1_471del471	p.0?	CCRF-CEM	CCL-119™
primary	Leukemia, acute monocytic	homozygous	c.1_471del471	p.0?	THP-1	TIB-202™
primary	Leukemia, acute T cell	homozygous	c.1_471del471	p.0?	J.RT3-T3.5	TIB-153™
primary	Leukemia, acute promyelocytic	homozygous	c.238C>T	p.R80*	HL-60	CCL-240™

PHARYNX

primary	Carcinoma, squamous cell	homozygous	c.151-1G>T	p.?	FaDu	HTB-43™
metastasis, pleural effusion	Carcinoma	homozygous	c.1_457del457	p.?	Detroit 562	CCL-138™

PLEURA

primary	Mesothelioma	homozygous	c.1_471del471	p.0?	NCI-H2452	CRL-5946™
metastasis, pleural effusion	Mesothelioma, biphasic	homozygous	c.1_150del150	p.?	MSTO-211H	CRL-2081™
metastasis, pleural effusion	Mesothelioma, squamous cell	homozygous	c.1_150del150	p.?	NCI-H226	CRL-5826™
metastasis, pleural effusion	Mesothelioma	homozygous	c.1_471del471	p.0?	NCI-H28	CRL-5820™
metastasis, pleural effusion	Mesothelioma	homozygous	c.1_471del471	p.0?	NCI-H2052	CRL-5915™

PROSTATE

metastasis, brain	Carcinoma	homozygous	c.250G>T	p.D84Y	DU 145	HTB-81™
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SALIVARY GLAND

primary	Carcinoma, epidermoid	homozygous	c.49_61del13	p.A17fs*5	A-253	HTB-41™
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SKIN

primary	Melanoma, amelanotic	homozygous	c.1_457del457	p.?	C32	CRL-1585™
primary	Melanoma	homozygous	c.1_471del471	p.0?	A101D	CRL-7898™
primary	Melanoma, malignant	homozygous	c.1_471del471	p.0?	G-361	CRL-1424™
primary	Melanoma, malignant	homozygous	c.1_471del471	p.0?	HT-144	HTB-63™
primary	Melanoma, malignant	homozygous	c.1_471del471	p.0?	Malme-3M	HTB-64™
primary	Melanoma, malignant	homozygous	c.181G>T	p.E61*	A-375	CRL-1619™
primary	Melanoma, malignant	homozygous	c.203_204delCG	p.A68fs*51	COLO 829	CRL-1974™
primary	Melanoma, malignant	homozygous	c.205G>T	p.E69*	A-375	CRL-1619™
primary	Melanoma	homozygous	c.330G>A	p.W110*	CHL-1	CRL-9446™
primary	Melanoma, amelanotic	homozygous	c.470G>C	p.*157S	C32	CRL-1585™

[†]For a description of the sequence variation nomenclature please refer to: *den Dunnen JT and Antonarakis SE (2000), Hum. Mutat. 15:7-12.*

Tumor Source	Histology	Zygosity	Gene Sequence [†]	Protein Sequence [†]	Name	ATCC® No.
metastasis, pleural effusion	Melanoma	homozygous	c.1_471del471	p.0?	SH-4	CRL-7724™
metastasis, pleural effusion	Melanoma, amelanotic	heterozygous	c.150+2T>C	p.?	MDA-MB-435S	HTB-129™
metastasis, pleural effusion	Melanoma, amelanotic	heterozygous	c.456_457+25AGGTGAGGACTGATGATCTGAGAATTT>C	p.?	MDA-MB-435S	HTB-129™
metastasis, lymph node	Melanoma, malignant	homozygous	c.1_471del471	p.0?	SK-MEL-24	HTB-71™
metastasis, lymph node	Melanoma, malignant	homozygous	c.1_471del471	p.0?	SK-MEL-5	HTB-70™
metastasis, lymph node	Melanoma, malignant	homozygous	c.237_238CC>TT	p.R80*	MeWo	HTB-65™
metastasis, lymph node	Melanoma, malignant	homozygous	c.47T>G	p.L16R	RPMI-7951	HTB-66™

STOMACH

metastasis, ascites	Carcinoma	homozygous	c.1_471del471	p.0?	SNU-16	CRL-5974™
metastasis, ascites	Carcinoma	homozygous	c.238C>T	p.R80*	SNU-5	CRL-5973™

SYNOVIUM

primary	Liposarcoma	homozygous	c.1_471del471	p.0?	SW 982	HTB-93™
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TONGUE

primary	Carcinoma, squamous cell	homozygous	c.1_150del150	p.?	SCC-9	CRL-1629™
primary	Carcinoma, squamous cell	homozygous	c.1_471del471	p.0?	SCC-25	CRL-1628™
primary	Carcinoma, squamous cell	homozygous	c.205G>T	p.E69*	CAL 27	CRL-2095™
primary	Carcinoma, squamous cell	homozygous	c.458-7_461>A	p.?	SCC-4	CRL-1624™

UNKNOWN

metastasis, lung	Histiocytoma, fibrous	homozygous	c.95_96TG>GT	p.L32R	GCT	TIB-223™
metastasis, pleural effusion	Lymphoma, large cell	homozygous	c.1_471del471	p.0?	SR	CRL-2262™

URINARY BLADDER

primary	Carcinoma, transitional cell	homozygous	c.1_471del471	p.0?	UM-UC-3	CRL-1749™
primary	Carcinoma, transitional cell	homozygous	c.1_471del471	p.0?	SW 780	CRL-2169™
primary	Carcinoma, transitional cell, papilloma	homozygous	c.1_471del471	p.0?	RT4	HTB-2™

UTERUS

primary	Sarcoma	homozygous	c.1_471del471	p.0?	MES-SA	CRL-1976™
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[†]For a description of the sequence variation nomenclature please refer to: *den Dunnen JT and Antonarakis SE (2000), Hum. Mutat. 15:7-12.*



CTNNB1

The catenin (cadherin-associated protein) beta 1 (CTNNB1) gene encodes the β -catenin protein. β -catenin is found in complexes that also contain cadherin cell adhesion molecules and are necessary for regulating cell growth and adhesion in epithelial cell layers. In addition, CTNNB1 can function as an oncogene and mutations of CTNNB1 are known to play a role in a variety of cancers.

Tumor source	Histology	Zygosity	Gene Sequence [†]	Protein Sequence [†]	Name	ATCC [®] No.
ADRENAL GLAND, CORTEX						
primary	Carcinoma, adrenocortical	heterozygous	c.133T>C	p.S45P	NCI-H295	CRL-10296™
COLON						
primary	Carcinoma	heterozygous	c.133_135delTCT	p.S45del	HCT 116	CCL-247™
primary	Adenocarcinoma	homozygous	c.134C>T	p.S45F	LS 174T	CL-188™
primary	Adenocarcinoma	heterozygous	c.98C>A	p.S33Y	SW48	CCL-231™
DUODENUM						
primary	Adenocarcinoma	heterozygous	c.110C>T	p.S37F	HuTu 80	HTB-40™
LIVER						
primary	Carcinoma, hepatocellular	homozygous	c.14_241del228	p.A5_A80del	C3A	CRL-10741™
LUNG						
primary	Carcinoma	homozygous	c.121A>G	p.T41A	A-427	HTB-53™
primary	Carcinoma, alveolar cell	heterozygous	c.98C>T	p.S33F	SW 1573	CRL-2170™
metastasis, bone marrow	Carcinoma, small cell	homozygous	c.17A>G	p.D6G	NCI-H1092	CRL-5855™
PERIPHERAL BLOOD						
primary	Lymphoma, Burkitt's	homozygous	c.14_241del228	p.A5_A80del	Daudi	CCL-213™
SKIN						
metastasis, thoracic duct	Melanoma, malignant	heterozygous	c.98C>G	p.S33C	SK-MEL-1	HTB-67™
STOMACH						
primary	Adenocarcinoma	heterozygous	c.101G>A	p.G34E	AGS	CRL-1739™

[†]For a description of the sequence variation nomenclature please refer to: *den Dunnen JT and Antonarakis SE (2000), Hum. Mutat. 15:7-12.*



EGFR

The epidermal growth factor receptor (EGFR) gene encodes for a single-pass trans-membrane tyrosine kinase that is a member of the ErbB family of receptors. These receptors are involved in the control of cell growth and differentiation. Upon activation, EGFR initiates multiple signal transduction cascades including the MAPK, AKT, and JNK pathways. Mutations in EGFR have been associated with numerous cancers, and it has become a direct target for the development of anticancer therapeutics.

Tumor source	Histology	Zygoty	Gene Sequence [†]	Protein Sequence [†]	Name	ATCC [®] No.
COLON						
primary	Adenocarcinoma	heterozygous	c.2155G>A	p.G719S	SW48	CCL-231™
LUNG						
primary	Adenocarcinoma, non-small cell	heterozygous	c.2369C>T	p.T790M	NCI-H1975	CRL-5908™
primary	Adenocarcinoma, non-small cell	heterozygous	c.2573T>G	p.L858R	NCI-H1975	CRL-5908™
metastasis, pleural effusion	Adenocarcinoma	heterozygous	c.2235_2249del15	p.E746_A750del	NCI-H1650	CRL-5883™
PERIPHERAL BLOOD						
primary	Plasmacytoma, myeloma	heterozygous	c.2252C>T	p.T751I	RPMI 8226	CCL-155™
primary	Melanoma, malignant	homozygous	c.2257C>T	p.P753S	SK-MEL-28	HTB-72™
UNKNOWN						
metastasis, lymph node	Carcinoma, epidermoid	heterozygous	c.2494C>T	p.R832C	A388	CRL-7905™



ATCC CELL AUTHENTICATION TESTING SERVICE FOR STR PROFILE ANALYSIS

Short Tandem Repeat (STR) profiling, is a rapid, reproducible and standardized PCR-based method used to unambiguously identify or authenticate human cell lines at individual donor resolution. Given that misidentified cell lines continue to plague research, authentication of human cell lines via STR profile analysis is becoming a requirement of many journals and funding agencies.

Take advantage of our decades of experience with STR profiling and our unmatched expertise in interpreting data from over a thousand cancer cell lines. Send your human cell lines to the ATCC Cell Authentication Testing Service for STR profile analysis.

[†]For a description of the sequence variation nomenclature please refer to: *den Dunnen JT and Antonarakis SE (2000), Hum. Mutat. 15:7-12.*



PIK3CA

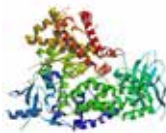
The phosphatidylinositol-4, 5-bisphosphate 3-kinase, catalytic subunit alpha (PIK3CA) gene encodes the p110 α catalytic subunit of class I phosphatidylinositol 3-kinases (PI3K). PI3K operates as part of the PI3K/AKT/mTOR pathway to mediate cell proliferation, survival, migration and vesicular trafficking, and mutations in PIK3CA have been implicated in several cancers including those arising from colon, lung, ovary, and breast.

Tumor source	Histology	Zygosity	Gene Sequence [†]	Protein Sequence [†]	Name	ATCC [®] No.
BREAST						
primary	Carcinoma	heterozygous	c.1616C>G	p.P539R	BT-20	HTB-19™
primary	Carcinoma	heterozygous	c.3140A>G	p.H1047R	BT-20	HTB-19™
primary	Carcinoma, ductal	heterozygous	c.3140A>G	p.H1047R	HCC1954	CRL-2338™
primary	Carcinoma, primary ductal	heterozygous	c.3140A>G	p.H1047R	UACC-893	CRL-1902™
primary	Carcinoma, ductal	heterozygous	c.333G>C	p.K111N	BT-474	HTB-20™
metastasis, brain	Adenocarcinoma	heterozygous	c.1633G>A	p.E545K	MDA-MB-361	HTB-27™
metastasis, pleural effusion	Adenocarcinoma	heterozygous	c.1633G>A	p.E545K	MCF7	HTB-22™
metastasis, pleural effusion	Carcinoma	heterozygous	c.3140A>G	p.H1047R	MDA-MB-453	HTB-131™
metastasis, pleural effusion	Carcinoma, ductal	heterozygous	c.3140A>G	p.H1047R	T-47D	HTB-133™
CAECUM						
metastasis, abdominal wall	Adenocarcinoma	heterozygous	c.1633G>A	p.E545K	NCI-H508	CCL-253™
CERVIX						
primary	Carcinoma	heterozygous	c.263G>A	p.R88Q	C-33 A	HTB-31™
metastasis, mesentery, small bowel	Carcinoma, epidermoid	heterozygous	c.1633G>A	p.E545K	Ca Ski	CRL-1550™
metastasis, omentum	Carcinoma, epidermoid	heterozygous	c.1633G>A	p.E545K	ME-180	HTB-33™
COLON						
primary	Adenocarcinoma	heterozygous	c.1345C>A	p.P449T	HT-29	HTB-38™
primary	Adenocarcinoma	heterozygous	c.1624G>A	p.E542K	SW948	CCL-237™
primary	Adenocarcinoma	heterozygous	c.1633G>A	p.E545K	HCT-15	CCL-225™
primary	Adenocarcinoma	heterozygous	c.1645G>A	p.D549N	HCT-15	CCL-225™
primary	Adenocarcinoma	heterozygous	c.3140A>G	p.H1047R	LS 174T	CL-188™
primary	Carcinoma	heterozygous	c.3140A>G	p.H1047R	HCT 116	CCL-247™
primary	Carcinoma, epithelial	heterozygous	c.3140A>G	p.H1047R	RKO	CRL-2577™
metastasis, lung	Carcinoma	heterozygous	c.1624G>A	p.E542K	T84	CCL-248™

[†]For a description of the sequence variation nomenclature please refer to: *den Dunnen JT and Antonarakis SE (2000), Hum. Mutat. 15:7-12.*

Tumor source	Histology	Zygoty	Gene Sequence [†]	Protein Sequence [†]	Name	ATCC® No.
LUNG						
primary	Carcinoma, adenosquamous	heterozygous	c.1633G>A	p.E545K	NCI-H596	HTB-178™
primary	Carcinoma, alveolar cell	heterozygous	c.331A>G	p.K111E	SW 1573	CRL-2170™
primary	Adenocarcinoma, non-small cell	heterozygous	c.353G>A	p.G118D	NCI-H1975	CRL-5908™
metastasis, pleural effusion	Carcinoma, large cell	heterozygous	c.1633G>A	p.E545K	NCI-H460	HTB-177™
metastasis, pleural effusion	Carcinoma, small cell	heterozygous	c.3140A>G	p.H1047R	NCI-H1048	CRL-5853™
metastasis, pleural effusion	Carcinoma, small cell	heterozygous	c.317_325del9	p.G106_R108del	NCI-H69	HTB-119™
metastasis, pleural effusion	Carcinoma, small cell	heterozygous	c.332A>G	p.K111R	NCI-H1048	CRL-5853™
LYMPHOID						
metastasis, pleural effusion	Lymphoma, T-cell lymphoblastic	heterozygous	c.1635G>T	p.E545D	SUP-T1	CRL-1942™
OVARY						
metastasis, ascites	Adenocarcinoma	heterozygous	c.3140A>G	p.H1047R	SK-OV-3	HTB-77™
PHARYNX						
metastasis, pleural effusion	Carcinoma	heterozygous	c.3140A>G	p.H1047R	Detroit 562	CCL-138™
PROSTATE						
primary	Carcinoma	heterozygous	c.1637A>G	p.Q546R	22Rv1	CRL-2505™
STOMACH						
primary	Adenocarcinoma	heterozygous	c.1357G>A	p.E453K	AGS	CRL-1739™
UNKNOWN						
metastasis, lymph node	Carcinoma, epidermoid	heterozygous	c.1633G>A	p.E545K	A388	CRL-7905™
URINARY BLADDER						
primary	Carcinoma	heterozygous	c.1633G>A	p.E545K	HT-1197	CRL-1473™
primary	Carcinoma, transitional cell	heterozygous	c.1633G>A	p.E545K	TCCSUP	HTB-5™
primary	Carcinoma, transitional cell	heterozygous	c.371C>T	p.P124L	J82	HTB-1™
UTERUS						
primary	Leiomyosarcoma	heterozygous	c.263G>A	p.R88Q	SK-UT-1	HTB-114™

[†]For a description of the sequence variation nomenclature please refer to: *den Dunnen JT and Antonarakis SE (2000), Hum. Mutat. 15:7-12.*



PIK3R1

The phosphatidylinositol-4, 5-bisphosphate 3-kinase, regulatory subunit 1 alpha (PIK3R1) gene encodes the p85 α regulatory subunit of class I phosphatidylinositol 3-kinases (PI3K). PI3K operates as part of the PI3K/AKT/mTOR pathway to mediate cell proliferation, survival, migration and vesicular trafficking, and mutations in PIK3R1 have been implicated in several cancers including those arising from colon, lung, ovary, and breast.

Tumor source	Histology	Zygosity	Gene Sequence [†]	Protein Sequence [†]	Name	ATCC [®] No.
BREAST						
metastasis, ascites	Carcinoma, ductal	homozygous	c.335_427del93	p.?	ZR-75-30	CRL-1504™
COLON						
primary	Adenocarcinoma	homozygous	c.1_2175del2175	p.0?	SW1417	CCL-238™
LUNG						
metastasis, soft tissue	Adenocarcinoma	heterozygous	c.211G>T	p.G71*	NCI-H1573	CRL-5877™
metastasis, pleural effusion	Carcinoma, small cell	homozygous	c.335_2175del1841	p.?	NCI-H2171	CRL-5929™
LYMPHOID						
primary	Leukemia, acute lymphoblastic	heterozygous	c.1355_1363>CTGGAGGGAGTAGGATTA	p.Y452_Q455>SGGSRIK	MOLT-4	CRL-1582™
UTERUS, ENDOMETRIUM						
metastasis, lymph node	Adenocarcinoma	heterozygous	c.1670_1681delGAGAAATTGACA	p.R557_K561>Q	AN3 CA	HTB-111™



DISSOCIATION REAGENTS, ATCC[®] 30-2200™

Q: What can I do if my cells are difficult to remove from the plate after trypsin digestion?

A: There are several factors that can reduce the efficiency of the trypsin. For example, there may be inhibitors in the medium that are inactivating the dissociating enzyme. Make sure to rinse the cell monolayer thoroughly before adding the dissociating solution with a reagent, such as Dulbecco's Phosphate Buffered Saline (D-PBS), 1X (ATCC[®] 30-2200™).

[†]For a description of the sequence variation nomenclature please refer to: *den Dunnen JT and Antonarakis SE (2000), Hum. Mutat. 15:7-12.*



PTEN

Phosphatase and tensin homolog (PTEN) is a tumor suppressor gene that encodes for a lipid phosphatase protein that down-regulates PI3K activity. The phosphatase activity of PTEN inhibits the AKT signaling pathway and affects regulation of the cell cycle. Mutations in this gene are associated with a variety of cancers, including prostate, brain, skin, and breast.

Tumor source	Histology	Zygoty	Gene Sequence [†]	Protein Sequence [†]	Name	ATCC [®] No.
BRAIN						
primary	Neuroglioma	homozygous	c.1_1212del1212	p.0?	H4	HTB-148™
primary	Glioblastoma, astrocytoma	homozygous	c.1026+1G>T	p.?	U-118 MG	HTB-15™
primary	Astrocytoma	homozygous	c.165_1212del1048	p.R55fs*1	SW 1088	HTB-12™
primary	Glioblastoma	homozygous	c.165_1212del1048	p.R55fs*1	A172	CRL-1620™
primary	Glioblastoma, astrocytoma	homozygous	c.209+1G>T	p.?	U-87 MG	HTB-14™
primary	Astrocytoma	homozygous	c.335T>G	p.L112R	CCF-STTG1	CRL-1718™
primary	Glioblastoma, multiforme	homozygous	c.611delC	p.P204fs*17	M059J	CRL-2366™
primary	Astrocytoma	homozygous	c.697C>T	p.R233*	SW 1783	HTB-13™
primary	Glioblastoma, multiforme	homozygous	c.802_1026del1225	p.?	DBTRG-05MG	CRL-2020™
BREAST						
primary	Carcinoma, primary ductal	homozygous	c.270delT	p.F90fs*9	HCC70	CRL-2315™
primary	Carcinoma, primary ductal	homozygous	c.635_1212del578	p.N212fs*1	HCC1395	CRL-2324™
primary	Carcinoma, ductal, papillary	homozygous	c.823delG	p.V275fs*1	BT-549	HTB-122™
metastasis, pleural effusion	Adenocarcinoma	homozygous	c.253+1G>T	p.?	MDA-MB-468	HTB-132™
metastasis, pleural effusion	Adenocarcinoma	heterozygous	c.274G>C	p.D92H	CAMA-1	HTB-21™
metastasis, pleural effusion	Adenocarcinoma	homozygous	c.407G>A	p.C136Y	MDA-MB-415	HTB-128™
metastasis, pleural effusion	Adenocarcinoma	heterozygous	c.831_834delCTTC	p.T277fs*13	CAMA-1	HTB-21™
CERVIX						
primary	Carcinoma	heterozygous	c.388C>T	p.R130*	C-33 A	HTB-31™
primary	Carcinoma	heterozygous	c.697C>T	p.R233*	C-33 A	HTB-31™
CONNECTIVE TISSUE						
primary	Liposarcoma	homozygous	c.1_1212del1212	p.0?	SW 872	HTB-92™
KIDNEY						
primary	Adenocarcinoma, renal cell	homozygous	c.445C>T	p.Q149*	786-O	CRL-1932™

[†]For a description of the sequence variation nomenclature please refer to: *den Dunnen JT and Antonarakis SE (2000), Hum. Mutat. 15:7-12.*

Tumor source	Histology	Zygoty	Gene Sequence [†]	Protein Sequence [†]	Name	ATCC® No.
LUNG						
metastasis, bone marrow	Carcinoma, small cell	homozygous	c.1_79del79	p.?	NCI-H2196	CRL-5932™
metastasis, brain	Carcinoma, small cell	homozygous	c.295G>T	p.E99*	NCI-H250	CRL-5828™
metastasis, lymph node	Carcinoma, small cell	homozygous	c.165_1212del1048	p.R55fs*1	NCI-H1436	CRL-5871™
metastasis, lymph node	Carcinoma, non-small cell, neuroendocrine	homozygous	c.531T>A	p.Y177*	NCI-H1770	CRL-5893™
metastasis, lymph node	Carcinoma, large cell	homozygous	c.697C>T	p.R233*	NCI-H1155	CRL-5818™
metastasis, pleural effusion	Carcinoma, small cell	homozygous	c.246_253delTTGCAGAG	p.?	NCI-H446	HTB-171™
metastasis, pleural effusion	Carcinoma, small cell	homozygous	c.371G>T	p.C124F	NCI-H2081	CRL-5920™
metastasis, pleural effusion	Carcinoma, small cell	homozygous	c.968delA	p.N323fs*21	NCI-H1522	CRL-5874™
metastasis, soft tissue	Carcinoma, small cell	homozygous	c.1_1212del1212	p.O?	NCI-H774	CRL-5842™
LYMPHOID						
primary	Leukemia, acute lymphoblastic	homozygous	c.800delA	p.K267fs*9	MOLT-4	CRL-1582™
metastasis, ascites	Lymphoma, undifferentiated	homozygous	c.331T>C	p.W111R	MC116	CRL-1649™
metastasis, ascites	Lymphoma, diffuse mixed	homozygous	c.802-2A>T	p.?	HT	CRL-2260™
metastasis, pleural effusion	Lymphoma, histiocytic	homozygous	c.389_390insCCCG	p.T131fs*50	TUR	CRL-2367™
metastasis, pleural effusion	Lymphoma, KSHV positive	homozygous	c.743_744delCT	p.P248fs*4	BC-3	CRL-2277™
PERIPHERAL BLOOD						
primary	Leukemia, acute T cell	heterozygous	c.699_700AC>GGCCCATGG	p.R234fs*11	J.RT3-T3.5	TIB-153™
primary	Leukemia, acute T cell	heterozygous	c.730_731ins37	p.Q245fs*20	J.RT3-T3.5	TIB-153™
primary	Leukemia, acute lymphoblastic	homozygous	c.80_492del413	p.?	CCRF-CEM	CCL-119™
PROSTATE						
metastasis, lymph node	Carcinoma	homozygous	c.17_18delAA	p.K6fs*4	LNCaP clone FGC	CRL-1740™
metastasis, bone	Adenocarcinoma	homozygous	c.165_1212del1048	p.R55fs*1	PC-3	CRL-1435™
RETROPERITONEAL						
primary	Primitive neuroectodermal, malignant	homozygous	c.1_79del79	p.?	SK-PN-DW	CRL-2139™
SKIN						
primary	Melanoma, amelanotic	homozygous	c.1_164del164	p.?	C32	CRL-1585™
primary	Melanoma, malignant	homozygous	c.165_209del45	p.?	HT-144	HTB-63™
primary	Melanoma	homozygous	c.493_1212del720	p.G165_*404del	A101D	CRL-7898™

[†]For a description of the sequence variation nomenclature please refer to: *den Dunnen JT and Antonarakis SE (2000), Hum. Mutat. 15:7-12.*

Tumor source	Histology	Zygoty	Gene Sequence [†]	Protein Sequence [†]	Name	ATCC [®] No.
primary	Melanoma, malignant	homozygous	c.493_634del142	p.?	COLO 829	CRL-1974™
metastasis, lymph node	Melanoma, malignant	homozygous	c.1_79del79	p.?	RPMI-7951	HTB-66™
metastasis, lymph node	Melanoma, malignant	heterozygous	c.335T>A	p.L112Q	A2058	CRL-11147™
metastasis, lymph node	Melanoma, malignant	heterozygous	c.524_558del35	p.V175fs*3	A2058	CRL-11147™
metastasis, lymph node	Melanoma, malignant	homozygous	c.80_164del85	p.?	SK-MEL-24	HTB-71™

TESTIS

primary	Teratocarcinoma	homozygous	c.518G>C	p.R173P	NCCIT	CRL-2073™
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URINARY BLADDER

primary	Carcinoma, transitional cell	homozygous	c.1_1212del1212	p.0?	UM-UC-3	CRL-1749™
primary	Carcinoma, transitional cell	homozygous	c.635_1212del578	p.N212fs*1	J82	HTB-1™

UTERUS

primary	Leiomyosarcoma	heterozygous	c.955_958delACTT	p.T319fs*1	SK-UT-1	HTB-114™
primary	Leiomyosarcoma	heterozygous	c.968_969insA	p.N323fs*2	SK-UT-1	HTB-114™

UTERUS, ENDOMETRIUM

primary	Carcinoma	heterozygous	c.968_969insA	p.N323fs*2	RL95-2	CRL-1671™
primary	Carcinoma	heterozygous	c.968delA	p.N323fs*21	RL95-2	CRL-1671™
metastasis, lymph node	Adenocarcinoma	homozygous	c.389delG	p.R130fs*4	AN3 CA	HTB-111™

CULTURE MEDIUM

While most cell lines can replicate in more than one culture medium, their characteristics may alter when the medium is changed. For this reason, starting cell cultures in the same medium used by ATCC is recommended for the best results (see the Appendix for the medium recommendations for each of the cell lines listed in this brochure). For details on adapting a cell line to a new medium, see page 14 of the *ATCC Animal Cell Culture Guide*. To download guide go to www.atcc-guides.org/cellculture

[†]For a description of the sequence variation nomenclature please refer to: *den Dunnen JT and Antonarakis SE (2000), Hum. Mutat. 15:7-12.*



RAS

The Rat Sarcoma (RAS) proto-oncogene encodes for proteins (KRAS, HRAS, and NRAS) that belong to the small GTPase superfamily. RAS proteins recruit and activate downstream effectors, such as those of the AKT and ERK pathways that in turn affect cell growth, differentiation and survival. Mutations in the RAS gene have been identified in pancreatic, colon, thyroid, bladder and ovarian cancers, and may be predictive of a very poor response to some cancer drugs (e.g. those that inhibit EGFR).

Gene	Tumor source	Histology	Zygosity	Gene Sequence [†]	Protein Sequence [†]	Name	ATCC [®] No.
KRAS							
BREAST							
	metastasis, pleural effusion	Adenocarcinoma	heterozygous	c.38G>A	p.G13D	MDA-MB-231	HTB-26™
CAECUM							
	primary	Carcinoma	homozygous	c.35G>A	p.G12D	SNU-C2B	CCL-250™
	primary	Carcinoma	heterozygous	c.35G>A	p.G12D	LS513	CRL-2134™
	primary	Carcinoma	heterozygous	c.436G>A	p.A146T	LS1034	CRL-2158™
	metastasis, common duct node	Adenocarcinoma	heterozygous	c.38G>A	p.G13D	NCI-H747	CCL-252™
CERVIX							
	primary	Carcinoma, squamous cell	heterozygous	c.34G>T	p.G12C	SW756	CRL-10302™
COLON							
	primary	Adenocarcinoma	heterozygous	c.182A>T	p.Q61L	SW948	CCL-237™
	primary	Adenocarcinoma	heterozygous	c.34G>A	p.G12S	LS123	CCL-255™
	primary	Adenocarcinoma	heterozygous	c.35G>A	p.G12D	LS 174T	CL-188™
	primary	Adenocarcinoma	heterozygous	c.35G>C	p.G12A	SW1116	CCL-233™
	primary	Adenocarcinoma	heterozygous	c.38G>A	p.G13D	HCT-15	CCL-225™
	primary	Carcinoma	heterozygous	c.38G>A	p.G13D	HCT 116	CCL-247™
	metastasis, ovary	Adenocarcinoma	heterozygous	c.35G>T	p.G12V	SW 626	HTB-78™
	metastasis, lymph node	Adenocarcinoma	homozygous	c.35G>T	p.G12V	SW620	CCL-227™
	metastasis, lymph node	Adenocarcinoma	heterozygous	c.38G>A	p.G13D	LoVo	CCL-229™
	metastasis, lung	Carcinoma	heterozygous	c.38G>A	p.G13D	T84	CCL-248™
	metastasis, ascites	Adenocarcinoma	homozygous	c.35G>T	p.G12V	SK-CO-1	HTB-39™
LUNG							
	primary	Carcinoma, anaplastic	heterozygous	c.180_181TC>CA	p.Q61K	Calu-6	HTB-56™
	primary	Carcinoma	homozygous	c.34G>A	p.G12S	A549	CCL-185™

[†]For a description of the sequence variation nomenclature please refer to: *den Dunnen JT and Antonarakis SE (2000), Hum. Mutat. 15:7-12.*

Gene	Tumor source	Histology	Zygoty	Gene Sequence [†]	Protein Sequence [†]	Name	ATCC® No.
KRAS							
	primary	Adenocarcinoma, non-small cell	heterozygous	c.34G>T	p.G12C	NCI-H23	CRL-5800™
	primary	Carcinoma, alveolar cell	homozygous	c.34G>T	p.G12C	SW 1573	CRL-2170™
	primary	Carcinoma, non-small cell	heterozygous	c.34G>T	p.G12C	NCI-H358	CRL-5807™
	primary	Adenocarcinoma	heterozygous	c.35G>A	p.G12D	SK-LU-1	HTB-57™
	primary	Carcinoma	heterozygous	c.35G>A	p.G12D	A-427	HTB-53™
	primary	Carcinoma, small cell	homozygous	c.35G>T	p.G12V	SHP-77	CRL-2195™
	primary	Carcinoma, squamous cell	heterozygous	c.35G>T	p.G12V	SW 900	HTB-59™
	primary	Adenocarcinoma, non-small cell	heterozygous	c.37G>T	p.G13C	NCI-H1734	CRL-5891™
	metastasis, soft tissue	Adenocarcinoma	heterozygous	c.35G>C	p.G12A	NCI-H1573	CRL-5877™
	metastasis, pleural effusion	Carcinoma, large cell	homozygous	c.183A>T	p.Q61H	NCI-H460	HTB-177™
	metastasis, pleural effusion	Adenocarcinoma	homozygous	c.34G>T	p.G12C	NCI-H1792	CRL-5895™
	metastasis, pleural effusion	Adenocarcinoma, non-small cell	homozygous	c.34G>T	p.G12C	NCI-H2122	CRL-5985™
	metastasis, pleural effusion	Adenocarcinoma	heterozygous	c.37G>T	p.G13C	NCI-H1355	CRL-5865™
	metastasis, pleura	Carcinoma, epidermoid	heterozygous	c.34G>T	p.G12C	Calu-1	HTB-54™
	metastasis, pericardial fluid	Adenocarcinoma, papillary	heterozygous	c.35G>T	p.G12V	NCI-H441	HTB-174™
	metastasis, lymph node	Carcinoma, large cell	homozygous	c.183A>T	p.Q61H	NCI-H1155	CRL-5818™
	metastasis, lymph node	Adenocarcinoma, non-small cell	homozygous	c.34_35GG>TT	p.G12F	NCI-H2291	CRL-5939™
	metastasis, lymph node	Adenocarcinoma, non-small cell	homozygous	c.34G>T	p.G12C	NCI-H2030	CRL-5914™
	metastasis, lymph node	Adenocarcinoma	heterozygous	c.35G>C	p.G12A	NCI-H2009	CRL-5911™
	primary	Carcinoid	homozygous	c.35G>T	p.G12V	NCI-H727	CRL-5815™

PANCREAS

	primary	Carcinoma	homozygous	c.34G>T	p.G12C	MIA PaCa-2	CRL-1420™
	primary	Adenocarcinoma	heterozygous	c.35G>A	p.G12D	Panc 10.05	CRL-2547™
	primary	Adenocarcinoma	homozygous	c.35G>A	p.G12D	Panc 08.13	CRL-2551™
	primary	Adenocarcinoma	heterozygous	c.35G>T	p.G12V	Panc 03.27	CRL-2549™
	primary	Adenocarcinoma	heterozygous	c.35G>T	p.G12V	Capan-2	HTB-80™
	metastasis, spleen	Adenocarcinoma	homozygous	c.35G>A	p.G12D	SW 1990	CRL-2172™
	metastasis, liver	Adenocarcinoma, ductal	heterozygous	c.35G>T	p.G12V	CFPAC-1	CRL-1918™
	metastasis, ascites	Adenocarcinoma	homozygous	c.35G>A	p.G12D	AsPC-1	CRL-1682™
	metastasis, ascites	Adenocarcinoma	heterozygous	c.35G>A	p.G12D	HPAF-II	CRL-1997™

[†]For a description of the sequence variation nomenclature please refer to: *den Dunnen JT and Antonarakis SE (2000), Hum. Mutat. 15:7-12.*

Gene	Tumor source	Histology	Zygoty	Gene Sequence [†]	Protein Sequence [†]	Name	ATCC [®] No.
PERIPHERAL BLOOD							
	primary	Leukemia, acute lymphoblastic	heterozygous	c.35G>A	p.G12D	CCRF-CEM	CCL-119™
	primary	Plasmacytoma, myeloma	heterozygous	c.35G>C	p.G12A	RPMI 8226	CCL-155™
RECTUM							
	primary	Adenocarcinoma	homozygous	c.34G>T	p.G12C	SW1463	CCL-234™
	primary	Adenocarcinoma	heterozygous	c.34G>T	p.G12C	SW837	CCL-235™
STOMACH							
	primary	Adenocarcinoma	heterozygous	c.35G>A	p.G12D	AGS	CRL-1739™
	primary	Carcinoma	heterozygous	c.35G>A	p.G12D	SNU-1	CRL-5971™
URINARY BLADDER							
	primary	Carcinoma, transitional cell	homozygous	c.34G>T	p.G12C	UM-UC-3	CRL-1749™
HRAS							
PERIPHERAL BLOOD							
	primary	Lymphoma, B lymphocyte	heterozygous	c.182A>G	p.Q61R	MC/CAR	CRL-8083™
URINARY BLADDER							
	primary	Carcinoma, transitional cell	homozygous	c.35G>T	p.G12V	T24	HTB-4™
UTERUS, ENDOMETRIUM							
	primary	Carcinoma	heterozygous	c.183G>T	p.Q61H	RL95-2	CRL-1671™
NRAS							
BRAIN							
	primary	Neuroblastoma	heterozygous	c.181C>A	p.Q61K	CHP-212	CRL-2273™
	metastasis, bone marrow	Neuroblastoma, embryonal	heterozygous	c.181C>A	p.Q61K	SK-N-AS	CRL-2137™
CONNECTIVE TISSUE							
	primary	Fibrosarcoma	heterozygous	c.181C>A	p.Q61K	HT-1080	CCL-121™

[†]For a description of the sequence variation nomenclature please refer to: *den Dunnen JT and Antonarakis SE (2000), Hum. Mutat. 15:7-12.*

Gene	Tumor source	Histology	Zygosity	Gene Sequence [†]	Protein Sequence [†]	Name	ATCC [®] No.
LIVER							
	primary	Carcinoma, hepatocellular, pleomorphic	heterozygous	c.181C>A	p.Q61K	SNU-387	CRL-2237™
	primary	Carcinoma, hepatocellular	heterozygous	c.182A>T	p.Q61L	C3A	CRL-10741™
LUNG							
	primary	Adenocarcinoma, non-small cell	homozygous	c.182A>G	p.Q61R	NCI-H2347	CRL-5942™
	metastasis, lymph node	Adenocarcinoma, non-small cell	heterozygous	c.181C>A	p.Q61K	NCI-H2087	CRL-5922™
	metastasis, lymph node	Carcinoma, large cell	heterozygous	c.181C>A	p.Q61K	NCI-H1299	CRL-5803™
LYMPHOID							
	primary	Lymphoma, cutaneous	heterozygous	c.181C>A	p.Q61K	H9	HTB-176™
	primary	Leukemia, acute lymphoblastic	heterozygous	c.34G>T	p.G12C	MOLT-4	CRL-1582™
MUSCLE							
	primary	Rhabdomyosarcoma	homozygous	c.183A>T	p.Q61H	RD	CCL-136™
OVARY							
	metastasis, ascites	Teratocarcinoma	heterozygous	c.35G>A	p.G12D	PA-1	CRL-1572™
PERIPHERAL BLOOD							
	primary	Leukemia, acute promyelocytic	heterozygous	c.182A>T	p.Q61L	HL-60	CCL-240™
	primary	Leukemia, acute monocytic	heterozygous	c.35G>A	p.G12D	THP-1	TIB-202™
	primary	Lymphoma, Burkitt's	heterozygous	c.35G>T	p.G12V	GA-10 (Clone 4)	CRL-2393™
	primary	Leukemia, acute monocytic	heterozygous	c.38G>T	p.G13V	AML-193	CRL-9589™
SKIN							
	metastasis, skin	Melanoma, malignant	homozygous	c.182A>G	p.Q61R	SK-MEL-2	HTB-68™
URINARY BLADDER							
	primary	Carcinoma	heterozygous	c.182A>G	p.Q61R	HT-1197	CRL-1473™

GROWTH CURVES

Cells grow at different rates in each of the different phases of the growth cycle and the calculated doubling time may be a composite of growth during more than one of these phases. Growth during exponential growth or log phase is fairly constant and reproducible for a given set of growth conditions.

[†]For a description of the sequence variation nomenclature please refer to: *den Dunnen JT and Antonarakis SE (2000), Hum. Mutat. 15:7-12.*



RB1

The retinoblastoma (RB1) tumor suppressor gene encodes a protein that regulates cell proliferation by controlling progression through the G1 cell cycle checkpoint. RB1 has three unique binding domains and interacts with regulatory proteins including transcription factors and the c-Abl tyrosine kinase. Loss-of-function mutants of RB1 have been found in a host of cancers.

Tumor source	Histology	Zygosity	Gene Sequence [†]	Protein Sequence [†]	Name	ATCC [®] No.
ADRENAL GLAND, CORTEX						
primary	Carcinoma, adrenocortical	homozygous	c.862_2787del1926	p.?	NCI-H295	CRL-10296™
BONE						
primary	Glioblastoma, multiforme	homozygous	c.1498+5G>C	p.?	M059J	CRL-2366™
primary	Astrocytoma	homozygous	c.1735C>T	p.R579*	SW 1783	HTB-13™
primary	Osteosarcoma	homozygous	c.2212_2787del576	p.?	Saos-2	HTB-85™
BREAST						
primary	Carcinoma, ductal, papillary	homozygous	c.265_607del343	p.?	BT-549	HTB-122™
metastasis, skin	Carcinoma, ductal	homozygous	c.1_2787del2787	p.0?	DU4475	HTB-123™
metastasis, pleural effusion	Adenocarcinoma	homozygous	c.265_2787del2523	p.?	MDA-MB-468	HTB-132™
CERVIX						
primary	Carcinoma	homozygous	c.1961-1G>A	p.?	C-33 A	HTB-31™
EYE, RETINA						
primary	Retinoblastoma	homozygous	c.1_2787del2787	p.0?	WERI-Rb-1	HTB-169™
LUNG						
primary	Carcinoma, small cell	homozygous	c.183T>A	p.C61*	NCI-H1963	CRL-5982™
primary	Adenocarcinoma, non-small cell	homozygous	c.380G>T	p.S127I	NCI-H1734	CRL-5891™
primary	Carcinoma, small cell	homozygous	c.496G>T	p.E166*	NCI-H2227	CRL-5934™
primary	Carcinoma, adenosquamous	homozygous	c.542_543insT	p.S182fs*3	NCI-H596	HTB-178™
primary	Adenocarcinoma, non-small cell	homozygous	c.610delG	p.E204fs*10	NCI-H2228	CRL-5935™
primary	Carcinoma, small cell	homozygous	c.963C>A	p.Y321*	NCI-H1417	CRL-5869™
primary	Carcinoid, atypical	homozygous	c.1030C>T	p.Q344*	NCI-H720	CRL-5838™
primary	Carcinoid	homozygous	c.1585delT	p.Y529fs*3	NCI-H835	CRL-5843™
metastasis, soft tissue	Carcinoma, small cell	homozygous	c.2501C>G	p.S834*	NCI-H774	CRL-5842™
metastasis, pleural effusion	Carcinoma, small cell	homozygous	c.1252delA	p.R418fs*2	NCI-H128	HTB-120™
metastasis, pleural effusion	Carcinoma, small cell	homozygous	c.1654C>T	p.R552*	NCI-H1048	CRL-5853™

[†]For a description of the sequence variation nomenclature please refer to: *den Dunnen JT and Antonarakis SE (2000), Hum. Mutat. 15:7-12.*

Tumor source	Histology	Zygosity	Gene Sequence [†]	Protein Sequence [†]	Name	ATCC [®] No.
metastasis, pleural effusion	Carcinoma, small cell	homozygous	c.1700C>A	p.S567*	NCI-H2171	CRL-5929™
LUNG						
metastasis, pleural effusion	Carcinoma, small cell	homozygous	c.2242G>T	p.E748*	NCI-H69	HTB-119™
metastasis, pleural effusion	Carcinoma, small cell	homozygous	c.2268T>A	p.Y756*	NCI-H2081	CRL-5920™
metastasis, pleural effusion	Carcinoma, small cell lung cancer	homozygous	c.2401G>T	p.G801*	DMS 79	CRL-2049™
metastasis, pleural effusion	Carcinoma, small cell	homozygous	c.940-2A>T	p.?	NCI-H446	HTB-171™
metastasis, pleural effusion	Carcinoma, small cell	homozygous	c.940-2A>T	p.?	NCI-H82	HTB-175™
metastasis, lymph node	Carcinoma, small cell	homozygous	c.1498+1G>A	p.?	NCI-H2330	CRL-5940™
metastasis, lymph node	Carcinoma, small cell	homozygous	c.1499-2A>G	p.?	NCI-H2141	CRL-5927™
metastasis, lymph node	Carcinoma, small cell	homozygous	c.1597G>T	p.E533*	NCI-H64	CRL-5976™
metastasis, lymph node	Adenocarcinoma	homozygous	c.1696_2787del1092	p.?	NCI-H2009	CRL-5911™
metastasis, lymph node	Carcinoma, small cell variant	homozygous	c.1727C>G	p.S576*	NCI-H524	CRL-5831™
metastasis, lymph node	Carcinoma, non-small cell, neuroendocrine	homozygous	c.2053C>T	p.Q685*	NCI-H1770	CRL-5893™
metastasis, lymph node	Carcinoma, small cell	homozygous	c.2211+5G>T	p.?	NCI-H1436	CRL-5871™
metastasis, lymph node	Carcinoma, small cell	homozygous	c.265-1G>T	p.?	NCI-H2029	CRL-5913™
metastasis, lymph node	Carcinoma, small cell	homozygous	c.970_971insA	p.I324fs*4	NCI-H748	CRL-5841™
metastasis, liver	Carcinoma, small cell	homozygous	c.1716_1717insA	p.L572fs*2	DMS 153	CRL-2064™
metastasis, brain	Carcinoma, small cell	homozygous	c.2518+1delG	p.?	NCI-H250	CRL-5828™
metastasis, bone marrow	Carcinoma, small cell	homozygous	c.116delC	p.P39fs*26	NCI-H1618	CRL-5879™
metastasis, bone marrow	Carcinoma, small cell	heterozygous	c.1215+1G>T	p.?	NCI-H2107	CRL-5983™
metastasis, bone marrow	Carcinoma, small cell	homozygous	c.2117G>T	p.C706F	NCI-H209	HTB-172™
metastasis, bone marrow	Carcinoma, small cell	homozygous	c.2212_2213delAC	p.?	NCI-H2196	CRL-5932™
metastasis, bone marrow	Carcinoma, small cell	homozygous	c.2548C>T	p.Q850*	NCI-H146	HTB-173™
metastasis, bone marrow	Carcinoma, small cell	homozygous	c.380+1G>A	p.?	NCI-H1882	CRL-5903™
metastasis, bone marrow	Carcinoma, small cell	homozygous	c.448A>T	p.R150*	NCI-H719	CRL-5837™
metastasis, bone marrow	Carcinoma, small cell	heterozygous	c.583_584insT	p.W195fs*8	NCI-H2107	CRL-5983™
metastasis, bone marrow	Carcinoma, small cell variant	homozygous	c.91G>T	p.E31*	NCI-H526	CRL-5811™
metastasis, adrenal gland	Carcinoma, small cell	homozygous	c.793A>T	p.K265*	NCI-H510A	HTB-184™

Lymphoid

primary	Lymphoma, cutaneous	homozygous	c.138_264del127	p.?	H9	HTB-176™
metastasis, pleural effusion	Lymphoma, KSHV positive	homozygous	c.649C>T	p.Q217*	BC-3	CRL-2277™

[†]For a description of the sequence variation nomenclature please refer to: *den Dunnen JT and Antonarakis SE (2000), Hum. Mutat. 15:7-12.*

Tumor source	Histology	Zygosity	Gene Sequence [†]	Protein Sequence [†]	Name	ATCC® No.
PROSTATE						
metastasis, brain	Carcinoma	homozygous	c.2143A>T	p.K715*	DU 145	HTB-81™
RETROPERITONEAL						
primary	Primitive neuroectodermal, malignant	homozygous	c.234G>A	p.W78*	SK-PN-DW	CRL-2139™
URINARY BLADDER						
primary	Carcinoma	homozygous	c.975T>A	p.Y325*	5637	HTB-9™
primary	Carcinoma, transitional cell	homozygous	c.1696_2787del1092	p.?	TCCSUP	HTB-5™
primary	Carcinoma	homozygous	c.2104C>T	p.Q702*	HT-1376	CRL-1472™
primary	Carcinoma, transitional cell	homozygous	c.2107-2A>G	p.?	J82	HTB-1™
UTERUS						
primary	Leiomyosarcoma	homozygous	c.1959delA	p.V654fs*4	SK-UT-1	HTB-114™

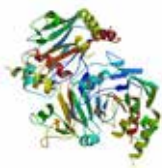


MTT CELL PROLIFERATION ASSAY, ATCC® 30-1010K™

Q: Can an MTT Cell Proliferation Assay directly replace [3H]-thymidine incorporation assays?

A: Yes, the addition of the dye solution can be substituted at the point in the assay when radioactive thymidine is added. Additionally, because the MTT Cell Proliferation Assay requires less cell manipulation than [3H]-thymidine the possibility of error is reduced and the standard deviation values are lower. In fact, comparisons between [3H]-thymidine incorporation and MTT assays have demonstrated less than 5% difference for determination of growth factor response.

[†]For a description of the sequence variation nomenclature please refer to: *den Dunnen JT and Antonarakis SE (2000), Hum. Mutat. 15:7-12.*



SMAD4

The mothers against DPP homolog 4 (SMAD4) tumor suppressor gene is involved in cell differentiation, embryonic development and apoptosis. This gene encodes for a downstream effector of the TGF β signaling pathway, and is frequently inactivated in pancreas and colon cancers

Tumor source	Histology	Zygoty	Gene Sequence [†]	Protein Sequence [†]	Name	ATCC [®] No.
BREAST						
metastasis, pleural effusion	Adenocarcinoma	homozygous	c.1_1659del1659	p.0?	MDA-MB-468	HTB-132™
COLON						
primary	Adenocarcinoma	homozygous	c.931C>T	p.Q311*	HT-29	HTB-38™
primary	Adenocarcinoma	homozygous	c.988G>T	p.E330*	LS123	CCL-255™
metastasis, lymph node	Adenocarcinoma	homozygous	c.955+5G>C	p.?	SW620	CCL-227™
metastasis, ascites	Adenocarcinoma	homozygous	c.1_667del667	p.?	COLO 205	CCL-222™
LUNG						
primary	Carcinoma, alveolar cell	homozygous	c.1_1659del1659	p.0?	SW 1573	CRL-2170™
primary	Carcinoid	homozygous	c.1606_1612delCTAGACG	p.L536fs*14	UMC-11	CRL-5975™
metastasis, ascites	Adenocarcinoma, non-small cell	homozygous	c.1_1659del1659	p.0?	NCI-H2405	CRL-5944™
metastasis, adrenal gland	Carcinoma, small cell	homozygous	c.88G>T	p.G30*	NCI-H510A	HTB-184™
PANCREAS						
primary	Adenocarcinoma	homozygous	c.1_1659del1659	p.0?	BxPC-3	CRL-1687™
primary	Adenocarcinoma	homozygous	c.366_367insA	p.C123fs*2	Panc 08.13	CRL-2551™
primary	Adenocarcinoma	homozygous	c.905_1659del755	p.?	Panc 03.27	CRL-2549™
metastasis, liver	Adenocarcinoma, ductal	homozygous	c.1_1659del1659	p.0?	CFPAC-1	CRL-1918™
PHARYNX						
primary	Carcinoma, squamous cell	homozygous	c.1_1659del1659	p.0?	FaDu	HTB-43™
STOMACH						
metastasis, liver	Carcinoma	homozygous	c.1_955del955	p.?	NCI-N87	CRL-5822™
TONGUE						
primary	Carcinoma, squamous cell	homozygous	c.733C>T	p.Q245*	CAL 27	CRL-2095™

[†]For a description of the sequence variation nomenclature please refer to: *den Dunnen JT and Antonarakis SE (2000), Hum. Mutat. 15:7-12.*

Tumor source	Histology	Zygoty	Gene Sequence [†]	Protein Sequence [†]	Name	ATCC [®] No.
UNKNOWN						
metastasis, lymph node	Carcinoma, epidermoid	homozygous	c.1_454del454	p.?	A388	CRL-7905™
VULVA						
primary	Carcinoma, squamous cell	homozygous	c.378_379delCT	p.V128fs*14	SW 954	HTB-117™



UNIVERSAL MYCOPLASMA DETECTION KIT, ATCC[®] 30-1012K™

The Universal Mycoplasma Detection Kit offers a quick and sensitive PCR-based test to detect mycoplasma contaminants in cell culture. All components required for the PCR reaction are provided and have been optimized for amplification. High specificity is obtained through the utilization of a proprietary mix of buffers, dNTPs and thermostable polymerase, combined with universal primers that are specific to the 16S rRNA coding region in the mycoplasma genome. DNA originating from other sources, such as tissue samples or other bacteria, are not amplified. A touchdown PCR regimen increases sensitivity of the assay, along with enhancing specificity.

The kit detects over 60 species of Mycoplasma, Acholeplasma, Spiroplasma and Ureaplasma including the eight species most likely to afflict cell cultures: *M. arginini*, *M. fermentans*, *M. hominis*, *M. hyorhinis*, *M. orale*, *M. pirum*, *M. salivarium*, and *A. laidlawii*. Samples that are positive for mycoplasma are easily recognized by a distinct PCR product ranging in size from 434 to 468 bp on an agarose gel. Find the Universal Mycoplasma Detection Kit product page at www.atcc.org.

[†]For a description of the sequence variation nomenclature please refer to: *den Dunnen JT and Antonarakis SE (2000), Hum. Mutat. 15:7-12.*



TP53

The TP53 gene encodes a major tumor suppressor transcription factor, p53, which plays a significant role in regulating cellular responses to DNA damage and other genomic anomalies. p53 activation leads to cell cycle arrest and DNA repair upon damage and initiates apoptosis when DNA damage is irreparable. Activated p53 binds DNA and activates expression of a diverse set of genes. p53 is modified post-translationally at multiple sites and binds a host of proteins to regulate the specificity of its activity. Mutations or deletions in the TP53 gene are found in greater than 50 percent of human tumors.

Tumor source	Histology	Zygoty	Gene Sequence [†]	Protein Sequence [†]	Name	ATCC [®] No.
ADRENAL GLAND, CORTEX						
primary	Carcinoma, primary small cell	homozygous	c.577C>T	p.H193Y	SW-13	CCL-105™
BONE						
primary	Osteosarcoma	homozygous	c.1_1182del1182	p.0?	Saos-2	HTB-85™
primary	Osteosarcoma	homozygous	c.467G>C	p.R156P	HOS	CRL-1543™
BONE MARROW						
primary	Leukemia, acute myelogenous	homozygous	c.672+1G>A	p.?	KG-1	CCL-246™
primary	Leukemia, chronic myelogenous	homozygous	c.697_699delCAC	p.H233del	MEG-01	CRL-2021™
metastasis, pleural effusion	Leukemia, chronic myelogenous	homozygous	c.406_407insC	p.Q136fs*13	K-562	CCL-243™
BRAIN						
primary	Glioblastoma, astrocytoma	homozygous	c.638G>A	p.R213Q	U-118 MG	HTB-15™
primary	Glioblastoma, multiforme	homozygous	c.711G>A	p.M237I	T98G	CRL-1690™
primary	Astrocytoma	homozygous	c.817C>T	p.R273C	SW 1088	HTB-12™
primary	Astrocytoma	heterozygous	c.817C>T	p.R273C	SW 1783	HTB-13™
primary	Astrocytoma	heterozygous	c.818G>A	p.R273H	SW 1783	HTB-13™
metastasis, bone marrow	Neuroblastoma, embryonal	homozygous	c.329G>T	p.R110L	SK-N-DZ	CRL-2149™
metastasis, bone marrow	Neuroblastoma, embryonal	homozygous	c.737T>G	p.M246R	SK-N-FI	CRL-2142™
BREAST						
primary	Carcinoma, primary ductal	homozygous	c.1024C>T	p.R342*	UACC-893	CRL-1902™
primary	Carcinoma, primary ductal	homozygous	c.220_226delGCCCTG	p.A74fs*47	HCC1419	CRL-2326™
primary	Carcinoma, primary ductal	homozygous	c.322_324delGGT	p.G108del	HCC1187	CRL-2322™
primary	Carcinoma	homozygous	c.394A>C	p.K132Q	BT-20	HTB-19™
primary	Carcinoma, ductal	homozygous	c.488A>G	p.Y163C	HCC1954	CRL-2338™
primary	Carcinoma, primary ductal	homozygous	c.524G>A	p.R175H	HCC1395	CRL-2324™
primary	Carcinoma, primary ductal	homozygous	c.659A>G	p.Y220C	HCC1419	CRL-2326™

[†]For a description of the sequence variation nomenclature please refer to: *den Dunnen JT and Antonarakis SE (2000), Hum. Mutat. 15:7-12.*

Tumor source	Histology	Zygosity	Gene Sequence [†]	Protein Sequence [†]	Name	ATCC [®] No.
primary	Carcinoma, primary ductal	homozygous	c.673-2A>T	p.?	HCC1599	CRL-2331™
primary	Carcinoma, primary ductal	homozygous	c.742C>T	p.R248W	HCC2157	CRL-2340™

BREAST

primary	Carcinoma, primary ductal	homozygous	c.743G>A	p.R248Q	HCC70	CRL-2315™
primary	Carcinoma, primary ductal	homozygous	c.743G>A	p.R248Q	HCC1143	CRL-2321™
primary	Carcinoma, ductal, papillary	homozygous	c.747G>C	p.R249S	BT-549	HTB-122™
primary	Carcinoma, primary acantholytic squamous cell	homozygous	c.766_767insAA	p.T256fs*90	HCC1806	CRL-2335™
primary	Carcinoma, primary ductal	homozygous	c.818G>T	p.R273L	HCC38	CRL-2314™
primary	Carcinoma, primary ductal	homozygous	c.847C>T	p.R283C	HCC2218	CRL-2343™
primary	Carcinoma, ductal	homozygous	c.853G>A	p.E285K	BT-474	HTB-20™
primary	Carcinoma, primary metaplastic	heterozygous	c.880G>T	p.E294*	HCC1569	CRL-2330™
primary	Carcinoma, primary ductal	homozygous	c.916C>T	p.R306*	HCC1937	CRL-2336™
metastasis, pleural effusion	Carcinoma, medullary	homozygous	c.261_286delAGCCCCCTCTGGCCCCGTGCATCTT	p.A88fs*52	MDA-MB-157	HTB-24™
metastasis, pleural effusion	Adenocarcinoma	homozygous	c.524G>A	p.R175H	AU565	CRL-2351™
metastasis, pleural effusion	Carcinoma, ductal	homozygous	c.580C>T	p.L194F	T-47D	HTB-133™
metastasis, pleural effusion	Adenocarcinoma	homozygous	c.707A>G	p.Y236C	MDA-MB-415	HTB-128™
metastasis, pleural effusion	Adenocarcinoma	homozygous	c.818G>A	p.R273H	MDA-MB-468	HTB-132™
metastasis, pleural effusion	Adenocarcinoma	homozygous	c.839G>A	p.R280K	MDA-MB-231	HTB-26™
metastasis, pleural effusion	Adenocarcinoma	homozygous	c.839G>C	p.R280T	CAMA-1	HTB-21™

CAECUM

primary	Carcinoma	heterozygous	c.378C>A	p.Y126*	LS411N	CRL-2159™
primary	Carcinoma	homozygous	c.733G>A	p.G245S	LS1034	CRL-2158™
primary	Carcinoma	heterozygous	c.817C>T	p.R273C	SNU-C2B	CCL-250™
primary	Carcinoma	heterozygous	c.818G>A	p.R273H	SNU-C2B	CCL-250™
metastasis, abdominal wall	Adenocarcinoma	homozygous	c.818G>A	p.R273H	NCI-H508	CCL-253™
metastasis, ascites	Adenocarcinoma	homozygous	c.672G>T	p.E224D	NCI-H716	CCL-251™
metastasis, common duct node	Adenocarcinoma	homozygous	c.473G>T	p.R158L	NCI-H747	CCL-252™

CEREBELLUM

primary	Medulloblastoma, desmoplastic	homozygous	c.725G>T	p.C242F	Daoy	HTB-186™
primary	Neuroectoderm, primitive, malignant	homozygous	c.823T>G	p.C275G	PFSK-1	CRL-2060™

[†]For a description of the sequence variation nomenclature please refer to: *den Dunnen JT and Antonarakis SE (2000), Hum. Mutat. 15:7-12.*

Tumor source	Histology	Zygoty	Gene Sequence [†]	Protein Sequence [†]	Name	ATCC [®] No.
CERVIX						
primary	Carcinoma	homozygous	c.817C>T	p.R273C	C-33 A	HTB-31™
metastasis, lymph node	Carcinoma	homozygous	c.734G>T	p.G245V	HT-3	HTB-32™
COLON						
primary	Adenocarcinoma	heterozygous	c.1101-2A>C	p.?	HCT-15	CCL-225™
primary	Adenocarcinoma	homozygous	c.476C>A	p.A159D	SW1116	CCL-233™
primary	Adenocarcinoma	heterozygous	c.524G>A	p.R175H	LS123	CCL-255™
primary	Adenocarcinoma	homozygous	c.610G>T	p.E204*	C2BBe1	CRL-2102™
primary	Adenocarcinoma	homozygous	c.712_725delTGTAACAGTTCCTG	p.C238fs*21	SW1417	CCL-238™
primary	Adenocarcinoma	heterozygous	c.722C>T	p.S241F	HCT-15	CCL-225™
primary	Adenocarcinoma	homozygous	c.742C>T	p.R248W	COLO 320HSR	CCL-220.1™
primary	Adenocarcinoma	homozygous	c.818G>A	p.R273H	HT-29	HTB-38™
metastasis, ascites	Adenocarcinoma	homozygous	c.308_333>TA	p.Y103_L111>L	COLO 205	CCL-222™
metastasis, lung	Carcinoma	homozygous	c.376-1G>T	p.?	T84	CCL-248™
metastasis, lymph node	Adenocarcinoma	homozygous	c.818G>A	p.R273H	SW620	CCL-227™
metastasis, lymph node	Adenocarcinoma	homozygous	c.925C>T	p.P309S	SW620	CCL-227™
metastasis, ovary	Adenocarcinoma	homozygous	c.785G>T	p.G262V	SW 626	HTB-78™
metastasis, peritoneum	Adenocarcinoma	homozygous	c.497C>A	p.S166*	SNU-C1	CRL-5972™
CONNECTIVE TISSUE						
primary	Fibrosarcoma	homozygous	c.637C>T	p.R213*	SW 684	HTB-91™
primary	Liposarcoma	homozygous	c.752T>A	p.I251N	SW 872	HTB-92™
EYE, RETINA						
primary	Retinoblastoma	heterozygous	c.292C>T	p.P98S	WERI-Rb-1	HTB-169™
KIDNEY						
primary	Adenocarcinoma, renal cell	heterozygous	c.560-2A>G	p.?	786-O	CRL-1932™
primary	Adenocarcinoma, renal cell	heterozygous	c.832C>G	p.P278A	786-O	CRL-1932™
metastasis, pleural effusion	Tumor, Wilms'	homozygous	c.733G>A	p.G245S	SK-NEP-1	HTB-48™
LIVER						
primary	Carcinoma, hepatocellular	homozygous	c.481G>A	p.A161T	SNU-449	CRL-2234™
primary	Carcinoma, hepatocellular, pleomorphic	homozygous	c.490A>T	p.K164*	SNU-387	CRL-2237™
primary	Carcinoma, hepatocellular	heterozygous	c.715A>G	p.N239D	SNU-475	CRL-2236™

[†]For a description of the sequence variation nomenclature please refer to: *den Dunnen JT and Antonarakis SE (2000), Hum. Mutat. 15:7-12.*

Tumor source	Histology	Zygosity	Gene Sequence [†]	Protein Sequence [†]	Name	ATCC® No.
primary	Carcinoma, hepatocellular	homozygous	c.747G>T	p.R249S	PLC/PRF/5	CRL-8024™
primary	Carcinoma, hepatocellular	heterozygous	c.785G>A	p.G262D	SNU-475	CRL-2236™

LUNG

primary	Adenocarcinoma, large cell	heterozygous	c.430C>T	p.Q144*	NCI-H1581	CRL-5878™
primary	Carcinoma, squamous cell	homozygous	c.438G>A	p.W146*	NCI-H520	HTB-182™
primary	Carcinoma, small cell	homozygous	c.440T>A	p.V147D	NCI-H1963	CRL-5982™
primary	Carcinoma, squamous cell	homozygous	c.472C>G	p.R158G	NCI-H2170	CRL-5928™
primary	Carcinoma, squamous cell	homozygous	c.499C>T	p.Q167*	SW 900	HTB-59™
primary	Carcinoma, small cell	homozygous	c.524G>T	p.R175L	NCI-H1417	CRL-5869™
primary	Adenocarcinoma, non-small cell	homozygous	c.527G>A	p.C176Y	NCI-H1651	CRL-5884™
primary	Carcinoid, atypical	homozygous	c.528C>G	p.C176W	NCI-H720	CRL-5838™
primary	Carcinoma, small cell	homozygous	c.528C>G	p.C176W	SHP-77	CRL-2195™
primary	Adenocarcinoma, non-small cell	homozygous	c.572delC	p.P191fs*56	NCI-H522	CRL-5810™
primary	Adenocarcinoma	heterozygous	c.578A>G	p.H193R	SK-LU-1	HTB-57™
primary	Carcinoma, anaplastic	homozygous	c.586C>T	p.R196*	Calu-6	HTB-56™
primary	Adenocarcinoma, non-small cell	heterozygous	c.625A>T	p.R209*	NCI-H1793	CRL-5896™
primary	Adenocarcinoma, non-small cell	homozygous	c.659A>G	p.Y220C	NCI-H2342	CRL-5941™
primary	Carcinoid	homozygous	c.681_681delT	p.D228fs*19	UMC-11	CRL-5975™
primary	Carcinoma, small cell lung cancer	heterozygous	c.722C>T	p.S241F	DMS 53	CRL-2062™
primary	Carcinoma, adenosquamous	homozygous	c.733G>T	p.G245C	NCI-H596	HTB-178™
primary	Adenocarcinoma, non-small cell	homozygous	c.738G>C	p.M246I	NCI-H23	CRL-5800™
primary	Carcinoma, small cell	homozygous	c.783-2A>C	p.?	NCI-H2227	CRL-5934™
primary	Adenocarcinoma, non-small cell	heterozygous	c.818G>A	p.R273H	NCI-H1793	CRL-5896™
primary	Adenocarcinoma, non-small cell	homozygous	c.818G>A	p.R273H	NCI-H1975	CRL-5908™
primary	Adenocarcinoma, non-small cell	homozygous	c.818G>T	p.R273L	NCI-H1734	CRL-5891™
primary	Adenocarcinoma, non-small cell	homozygous	c.818G>T	p.R273L	NCI-H1838	CRL-5899™
primary	Carcinoma, non-small cell	homozygous	c.879_880GG>CT	p.E294>*	NCI-H810	CRL-5816™
primary	Adenocarcinoma, squamous cell	homozygous	c.919+1G>T	p.?	NCI-H1703	CRL-5889™
primary	Adenocarcinoma, non-small cell	homozygous	c.991C>T	p.Q331*	NCI-H2228	CRL-5935™
metastasis, adrenal gland	Carcinoma, small cell	homozygous	c.844C>G	p.R282G	NCI-H510A	HTB-184™
metastasis, ascites	Carcinoma, small cell	homozygous	c.783-1G>T	p.?	NCI-H1694	CRL-5888™
metastasis, ascites	Adenocarcinoma, non-small cell	homozygous	c.818G>A	p.R273H	NCI-H2405	CRL-5944™
metastasis, bone marrow	Carcinoma, small cell	homozygous	c.469G>T	p.V157F	NCI-H2196	CRL-5932™
metastasis, bone marrow	Carcinoma, small cell	homozygous	c.673-2A>C	p.?	NCI-H1092	CRL-5855™

[†]For a description of the sequence variation nomenclature please refer to: *den Dunnen JT and Antonarakis SE (2000), Hum. Mutat. 15:7-12.*

Tumor source	Histology	Zygosity	Gene Sequence [†]	Protein Sequence [†]	Name	ATCC [®] No.
metastasis, bone marrow	Carcinoma, small cell	homozygous	c.673-2A>T	p.?	NCI-H209	HTB-172™
metastasis, bone marrow	Carcinoma, small cell	homozygous	c.707A>G	p.Y236C	NCI-H345	HTB-180™
metastasis, bone marrow	Carcinoma, small cell	homozygous	c.743G>A	p.R248Q	NCI-H719	CRL-5837™
metastasis, bone marrow	Carcinoma, small cell	homozygous	c.743G>T	p.R248L	NCI-H1618	CRL-5879™
metastasis, bone marrow	Carcinoma, small cell	homozygous	c.953_971del19	p.P318fs*21	NCI-H146	HTB-173™
metastasis, bone marrow	Carcinoma, small cell	homozygous	c.97-1G>C	p.?	NCI-H711	CRL-5836™
metastasis, bone marrow	Carcinoma, small cell variant	homozygous	c.97-1G>C	p.?	NCI-H526	CRL-5811™
metastasis, brain	Carcinoma, small cell	homozygous	c.830G>T	p.C277F	NCI-H250	CRL-5828™
metastasis, liver	Carcinoma, small cell	homozygous	c.463A>C	p.T155P	DMS 153	CRL-2064™
metastasis, liver	Adenocarcinoma, non-small cell	homozygous	c.725G>T	p.C242F	NCI-H1755	CRL-5892™
metastasis, lymph node	Carcinoma, small cell	homozygous	c.1001G>T	p.G334V	NCI-H1184	CRL-5858™
metastasis, lymph node	Adenocarcinoma	homozygous	c.104_105insT	p.L35fs*8	NCI-H1648	CRL-5882™
metastasis, lymph node	Adenocarcinoma, non-small cell	homozygous	c.184G>T	p.E62*	NCI-H838	CRL-5844™
metastasis, lymph node	Carcinoma, small cell	homozygous	c.193A>T	p.R65*	NCI-H2330	CRL-5940™
metastasis, lymph node	Adenocarcinoma, non-small cell	homozygous	c.461G>T	p.G154V	NCI-H2291	CRL-5939™
metastasis, lymph node	Carcinoma, small cell variant	homozygous	c.464C>A	p.T155N	NCI-H524	CRL-5831™
metastasis, lymph node	Adenocarcinoma, non-small cell	homozygous	c.469G>T	p.V157F	NCI-H2087	CRL-5922™
metastasis, lymph node	Carcinoma, large cell	homozygous	c.473G>T	p.R158L	NCI-H661	HTB-183™
metastasis, lymph node	Carcinoma, non-small cell	homozygous	c.492G>T	p.K164N	NCI-H650	CRL-5835™
metastasis, lymph node	Carcinoma, small cell	homozygous	c.537T>G	p.H179Q	NCI-H1436	CRL-5871™
metastasis, lymph node	Carcinoma, small cell	homozygous	c.625A>T	p.R209*	NCI-H2141	CRL-5927™
metastasis, lymph node	Carcinoma, large cell	heterozygous	c.644G>T	p.S215I	NCI-H661	HTB-183™
metastasis, lymph node	Carcinoma, small cell	homozygous	c.658T>G	p.Y220D	NCI-H2029	CRL-5913™
metastasis, lymph node	Carcinoma, small cell	homozygous	c.659A>G	p.Y220C	NCI-H748	CRL-5841™
metastasis, lymph node	Carcinoma, small cell	homozygous	c.725G>C	p.C242S	NCI-H889	CRL-5817™
metastasis, lymph node	Adenocarcinoma, non-small cell	homozygous	c.726C>G	p.C242W	NCI-H1993	CRL-5909™
metastasis, lymph node	Carcinoma, small cell	homozygous	c.733G>C	p.G245R	NCI-H1930	CRL-5906
metastasis, lymph node	Carcinoma, non-small cell, neuroendocrine	homozygous	c.741_742CC>TT	p.R248W	NCI-H1770	CRL-5893™
metastasis, lymph node	Carcinoma, small cell	homozygous	c.747G>T	p.R249S	NCI-H1105	CRL-5856™
metastasis, lymph node	Adenocarcinoma, non-small cell	homozygous	c.785G>T	p.G262V	NCI-H2030	CRL-5914™
metastasis, lymph node	Carcinoma, large cell	homozygous	c.818G>A	p.R273H	NCI-H1155	CRL-5818™
metastasis, lymph node	Adenocarcinoma	homozygous	c.818G>T	p.R273L	NCI-H2009	CRL-5911™
metastasis, lymph node	Adenocarcinoma, non-small cell	homozygous	c.818G>T	p.R273L	NCI-H1623	CRL-5881™
metastasis, lymph node	Carcinoma, small cell	homozygous	c.848G>C	p.R283P	NCI-H64	CRL-5976™

[†]For a description of the sequence variation nomenclature please refer to: *den Dunnen JT and Antonarakis SE (2000), Hum. Mutat. 15:7-12.*

Tumor source	Histology	Zygosity	Gene Sequence [†]	Protein Sequence [†]	Name	ATCC [®] No.
metastasis, lymph node	Adenocarcinoma, non-small cell	homozygous	c.993+1G>T	p.?	NCI-H1693	CRL-5887™
metastasis, mediastinal	Carcinoma, small cell	homozygous	c.637C>T	p.R213*	DMS 114	CRL-2066™
metastasis, pericardial fluid	Adenocarcinoma, papillary	homozygous	c.473G>T	p.R158L	NCI-H441	HTB-174™
metastasis, pleural effusion	Carcinoma, small cell	heterozygous	c.140delC	p.P47fs*76	NCI-H1048	CRL-5853™
metastasis, pleural effusion	Carcinoma, non-small cell	homozygous	c.184G>T	p.E62*	NCI-H2126	CCL-256™
metastasis, pleural effusion	Carcinoma, small cell	homozygous	c.202G>T	p.E68*	NCI-H1522	CRL-5874™
metastasis, pleural effusion	Carcinoma, small cell	homozygous	c.430C>T	p.Q144*	NCI-H2171	CRL-5929™
metastasis, pleural effusion	Carcinoma, small cell	homozygous	c.461G>T	p.G154V	NCI-H446	HTB-171™
metastasis, pleural effusion	Adenocarcinoma, non-small cell	heterozygous	c.47A>T	p.Q16L	NCI-H2122	CRL-5985™
metastasis, pleural effusion	Carcinoma, small cell	homozygous	c.488A>G	p.Y163C	NCI-H378	CRL-5808™
metastasis, pleural effusion	Carcinoma, small cell	homozygous	c.511G>T	p.E171*	NCI-H69	HTB-119™
metastasis, pleural effusion	Adenocarcinoma, non-small cell	heterozygous	c.527G>T	p.C176F	NCI-H2122	CRL-5985™
metastasis, pleural effusion	Adenocarcinoma	homozygous	c.672+1G>A	p.?	NCI-H1792	CRL-5895™
metastasis, pleural effusion	Adenocarcinoma	homozygous	c.673-2A>G	p.?	NCI-H1650	CRL-5883™
metastasis, pleural effusion	Adenocarcinoma	homozygous	c.711G>T	p.M237I	Calu-3	HTB-55™
metastasis, pleural effusion	Carcinoma, small cell	homozygous	c.722C>G	p.S241C	NCI-H187	CRL-5804™
metastasis, pleural effusion	Adenocarcinoma, non-small cell	homozygous	c.800G>C	p.R267P	NCI-H1437	CRL-5872™
metastasis, pleural effusion	Carcinoma, small cell	heterozygous	c.817C>T	p.R273C	NCI-H1048	CRL-5853™
metastasis, pleural effusion	Carcinoma, small cell lung cancer	homozygous	c.834_835TG>A	p.R280fs*65	DMS 79	CRL-2049™
metastasis, pleural effusion	Adenocarcinoma	homozygous	c.853G>A	p.E285K	NCI-H1355	CRL-5865™
metastasis, pleural effusion	Carcinoma, squamous cell	homozygous	c.892G>T	p.E298*	SK-MES-1	HTB-58™
metastasis, soft tissue	Carcinoma, small cell	homozygous	c.1024C>T	p.R342*	NCI-H774	CRL-5842™
metastasis, soft tissue	Adenocarcinoma	homozygous	c.743G>T	p.R248L	NCI-H1573	CRL-5877™

LUNG, BRONCHUS

primary	Carcinoid	homozygous	c.496_497ins9	p.Q165_S166insYKQ	NCI-H727	CRL-5815™
primary	Carcinoma	heterozygous	c.824G>T	p.C275F	ChaGo-K-1	HTB-168™
primary	Carcinoma	homozygous	c.97-1G>C	p.?	ChaGo-K-1	HTB-168™

LYMPH NODE

metastasis, ovary	Lymphoma, Burkitt's	homozygous	c.731G>A	p.G244D	EB2	HTB-61™
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LYMPHOID

primary	Leukemia, acute lymphocytic	heterozygous	c.541C>T	p.R181C	Reh	CRL-8286™
primary	Lymphoma, cutaneous	homozygous	c.586C>T	p.R196*	H9	HTB-176™
primary	Lymphoma, Burkitt's	homozygous	c.638G>A	p.R213Q	Raji	CCL-86™

[†]For a description of the sequence variation nomenclature please refer to: *den Dunnen JT and Antonarakis SE (2000), Hum. Mutat. 15:7-12.*

Tumor source	Histology	Zygosity	Gene Sequence [†]	Protein Sequence [†]	Name	ATCC [®] No.
primary	Lymphoma, Burkitt's	heterozygous	c.700T>C	p.Y234H	Raji	CCL-86™
LYMPHOID						
primary	Lymphoma, Burkitt's	homozygous	c.743G>A	p.R248Q	CA46	CRL-1648™
primary	Lymphoma, Burkitt's	homozygous	c.760_761AT>GA	p.I254D	Ramos.2G6.4C10	CRL-1923™
primary	Leukemia, acute lymphoblastic	heterozygous	c.916C>T	p.R306*	MOLT-4	CRL-1582™
metastasis, ascites	Lymphoma, Burkitt's	homozygous	c.394A>C	p.K132Q	Jiyoye	CCL-87™
metastasis, ascites	Lymphoma, non-Hodgkin's	homozygous	c.412G>C	p.A138P	RL	CRL-2261™
metastasis, ascites	Lymphoma, Burkitt's	heterozygous	c.473G>A	p.R158H	ST486	CRL-1647™
metastasis, ascites	Lymphoma, diffuse mixed	heterozygous	c.646G>A	p.V216M	HT	CRL-2260™
metastasis, ascites	Lymphoma, undifferentiated	homozygous	c.713G>A	p.C238Y	MC116	CRL-1649™
metastasis, ascites	Lymphoma, Burkitt's	heterozygous	c.715A>G	p.N239D	ST486	CRL-1647™
metastasis, ascites	Lymphoma, large B cell	heterozygous	c.743G>A	p.R248Q	DB	CRL-2289™
metastasis, ascites	Lymphoma, diffuse mixed	heterozygous	c.818G>A	p.R273H	HT	CRL-2260™
metastasis, pleural effusion	Lymphoma, histiocytic	homozygous	c.559+1G>A	p.?	TUR	CRL-2367™
metastasis, pleural effusion	Lymphoma, T-cell lymphoblastic	heterozygous	c.743G>A	p.R248Q	SUP-T1	CRL-1942™
metastasis, pleural effusion	Lymphoma, T-cell lymphoblastic	heterozygous	c.800G>T	p.R267L	SUP-T1	CRL-1942™
metastasis, pleural effusion	Lymphoma, T-cell lymphoblastic	heterozygous	c.818G>A	p.R273H	SUP-T1	CRL-1942™
MUSCLE						
primary	Rhabdomyosarcoma	homozygous	c.354_355insCA	p.A119fs*5	A-673	CRL-1598™
primary	Rhabdomyosarcoma	homozygous	c.742C>T	p.R248W	RD	CCL-136™
OVARY						
primary	Adenocarcinoma	homozygous	c.406C>T	p.Q136*	Caov-3	HTB-75™
metastasis, ascites	Adenocarcinoma	homozygous	c.267delC	p.S90fs*33	SK-OV-3	HTB-77™
metastasis, fallopian tube	Adenocarcinoma	homozygous	c.440T>A	p.V147D	Caov-4	HTB-76™
PANCREAS						
primary	Adenocarcinoma	homozygous	c.376-1G>T	p.?	Panc 03.27	CRL-2549™
primary	Adenocarcinoma	homozygous	c.659A>G	p.Y220C	BxPC-3	CRL-1687™
primary	Carcinoma	homozygous	c.742C>T	p.R248W	MIA PaCa-2	CRL-1420™
primary	Adenocarcinoma	heterozygous	c.764T>A	p.I255N	Panc 10.05	CRL-2547™
metastasis, ascites	Adenocarcinoma	homozygous	c.403delT	p.C135fs*35	AsPC-1	CRL-1682™
metastasis, ascites	Adenocarcinoma	homozygous	c.451C>T	p.P151S	HPAF-II	CRL-1997™
metastasis, liver	Adenocarcinoma, ductal	homozygous	c.724T>C	p.C242R	CFPAC-1	CRL-1918™

[†]For a description of the sequence variation nomenclature please refer to: *den Dunnen JT and Antonarakis SE (2000), Hum. Mutat. 15:7-12.*

Tumor source	Histology	Zygosity	Gene Sequence [†]	Protein Sequence [†]	Name	ATCC® No.
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PERIPHERAL BLOOD

primary	Leukemia, acute promyelocytic	homozygous	c.1_1182del1182	p.0?	HL-60	CCL-240™
primary	Leukemia, acute T cell	heterozygous	c.1083delG	p.G361fs*8	J.RT3-T3.5	TIB-153™
primary	Lymphoma, cutaneous T cell	homozygous	c.376-1G>A	p.?	HH	CRL-2105™
primary	Lymphoma, Burkitt's	heterozygous	c.455C>T	p.P152L	GA-10 (Clone 4)	CRL-2393™
primary	Leukemia, acute monocytic	homozygous	c.520_545del26	p.R174fs*3	THP-1	TIB-202™
primary	Leukemia, acute lymphoblastic	heterozygous	c.524G>A	p.R175H	CCRF-CEM	CCL-119™
primary	Leukemia, acute T cell	heterozygous	c.586C>T	p.R196*	J.RT3-T3.5	TIB-153™
primary	Lymphoma, Burkitt's	heterozygous	c.695T>A	p.I232N	GA-10 (Clone 4)	CRL-2393™
primary	Leukemia, acute lymphoblastic	heterozygous	c.743G>A	p.R248Q	CCRF-CEM	CCL-119™
primary	Leukemia, acute myeloblastic	homozygous	c.743G>A	p.R248Q	Kasumi-1	CRL-2724™
primary	Lymphoma, Burkitt's	heterozygous	c.797G>A	p.G266E	Daudi	CCL-213™
primary	Leukemia, acute lymphoblastic	homozygous	c.814G>A	p.V272M	Loucy	CRL-2629™
primary	Leukemia, plasma cell	homozygous	c.818G>A	p.R273H	ARH-77	CRL-1621™
primary	Plasmacytoma, myeloma	homozygous	c.853G>A	p.E285K	RPMI 8226	CCL-155™
primary	Leukemia, acute monocytic	homozygous	c.993+2T>G	p.?	AML-193	CRL-9589™

PHARYNX

primary	Carcinoma, squamous cell	heterozygous	c.376-1G>A	p.?	FaDu	HTB-43™
primary	Carcinoma, squamous cell	heterozygous	c.743G>T	p.R248L	FaDu	HTB-43™
metastasis, pleural effusion	Carcinoma	homozygous	c.524G>A	p.R175H	Detroit 562	CCL-138™

PROSTATE

primary	Carcinoma	heterozygous	c.992A>G	p.Q331R	22Rv1	CRL-2505™
metastasis, brain	Carcinoma	heterozygous	c.668C>T	p.P223L	DU 145	HTB-81™
metastasis, brain	Carcinoma	heterozygous	c.820G>T	p.V274F	DU 145	HTB-81™
metastasis, bone	Adenocarcinoma	homozygous	c.414delC	p.K139fs*31	PC-3	CRL-1435™

RECTUM

primary	Adenocarcinoma	homozygous	c.742C>T	p.R248W	SW837	CCL-235™
primary	Adenocarcinoma	homozygous	c.743G>A	p.R248Q	SW1463	CCL-234™

RETROPERITONEAL

primary	Primitive neuroectodermal, malignant	homozygous	c.527G>T	p.C176F	SK-PN-DW	CRL-2139™
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[†]For a description of the sequence variation nomenclature please refer to: *den Dunnen JT and Antonarakis SE (2000), Hum. Mutat. 15:7-12.*

Tumor source	Histology	Zygoty	Gene Sequence [†]	Protein Sequence [†]	Name	ATCC [®] No.
SALIVARY GLAND						
primary	Carcinoma, epidermoid	homozygous	c.539delA	p.E180fs*67	A-253	HTB-41™
SKIN						
primary	Melanoma, malignant	homozygous	c.434_435TG>GT	p.L145R	SK-MEL-28	HTB-72™
primary	Melanoma	homozygous	c.578A>G	p.H193R	CHL-1	CRL-9446™
primary	Carcinoma, epidermoid	homozygous	c.818G>A	p.R273H	A-431	CRL-1555™
metastasis, lymph node	Melanoma, malignant	homozygous	c.497C>A	p.S166*	RPMI-7951	HTB-66™
metastasis, lymph node	Melanoma, malignant	heterozygous	c.772G>A	p.E258K	MeWo	HTB-65™
metastasis, lymph node	Melanoma, malignant	homozygous	c.799C>T	p.R267W	SK-MEL-3	HTB-69™
metastasis, lymph node	Melanoma, malignant	homozygous	c.820G>T	p.V274F	A2058	CRL-11147™
metastasis, lymph node	Melanoma, malignant	heterozygous	c.949C>T	p.Q317*	MeWo	HTB-65™
metastasis, pleural effusion	Melanoma, amelanotic	heterozygous	c.797G>A	p.G266E	MDA-MB-435S	HTB-129™
metastasis, skin	Melanoma, malignant	heterozygous	c.733G>A	p.G245S	SK-MEL-2	HTB-68™
STOMACH						
metastasis, ascites	Carcinoma	homozygous	c.614A>T	p.Y205F	SNU-16	CRL-5974™
metastasis, ascites	Carcinoma	homozygous	c.783-2A>C	p.?	SNU-5	CRL-5973™
metastasis, liver	Carcinoma	homozygous	c.743G>A	p.R248Q	NCI-N87	CRL-5822™
metastasis, pleural effusion	Carcinoma	homozygous	c.1_1182del1182	p.0?	KATO III	HTB-103™
TESTIS						
primary	Teratocarcinoma	homozygous	c.814delG	p.V272fs*73	NCCIT	CRL-2073™
TONGUE						
primary	Carcinoma, squamous cell	homozygous	c.451C>T	p.P151S	SCC-4	CRL-1624™
primary	Carcinoma, squamous cell	homozygous	c.578A>T	p.H193L	CAL 27	CRL-2095™
primary	Carcinoma, squamous cell	homozygous	c.625_626delAG	p.R209fs*6	SCC-25	CRL-1628™
primary	Carcinoma, squamous cell	homozygous	c.672+1G>T	p.?	SCC-15	CRL-1623™
primary	Carcinoma, squamous cell	homozygous	c.822_853del32	p.C275fs*20	SCC-9	CRL-1629™
UNKNOWN						
metastasis, lung	Histiocytoma, fibrous	heterozygous	c.741_742CC>TT	p.R248W	GCT	TIB-223™
metastasis, lung	Histiocytoma, fibrous	heterozygous	c.948_949CC>TT	p.Q317*	GCT	TIB-223™
metastasis, lymph node	Carcinoma, epidermoid	heterozygous	c.404G>T	p.C135F	A388	CRL-7905™

[†]For a description of the sequence variation nomenclature please refer to: *den Dunnen JT and Antonarakis SE (2000), Hum. Mutat. 15:7-12.*

Tumor source	Histology	Zygosity	Gene Sequence [†]	Protein Sequence [†]	Name	ATCC [®] No.
URINARY BLADDER						
primary	Carcinoma, transitional cell	homozygous	c.1045G>T	p.E349*	TCCSUP	HTB-5™
primary	Carcinoma, transitional cell	homozygous	c.338T>G	p.F113C	UM-UC-3	CRL-1749™
primary	Carcinoma, transitional cell	homozygous	c.378C>G	p.Y126*	T24	HTB-4™
primary	Carcinoma	homozygous	c.749C>T	p.P250L	HT-1376	CRL-1472™
primary	Carcinoma, transitional cell	heterozygous	c.783_919del137	p.?	J82	HTB-1™
primary	Carcinoma	homozygous	c.839G>C	p.R280T	5637	HTB-9™
primary	Carcinoma, transitional cell	homozygous	c.960G>C	p.K320N	J82	HTB-1™
UTERUS						
primary	Leiomyosarcoma	heterozygous	c.524G>A	p.R175H	SK-UT-1	HTB-114™
primary	Leiomyosarcoma	heterozygous	c.743G>A	p.R248Q	SK-UT-1	HTB-114™
UTERUS, ENDOMETRIUM						
primary	Carcinoma	heterozygous	c.216delC	p.V73fs*50	RL95-2	CRL-1671™
primary	Adenocarcinoma	homozygous	c.524G>A	p.R175H	KLE	CRL-1622™
primary	Carcinoma	heterozygous	c.652_654delGTG	p.V218del	RL95-2	CRL-1671™
metastasis, lymph node	Adenocarcinoma	heterozygous	c.1165G>T	p.G389W	AN3 CA	HTB-111™
metastasis, lymph node	Adenocarcinoma	heterozygous	c.267delC	p.S90fs*33	AN3 CA	HTB-111™
metastasis, lymph node	Adenocarcinoma	heterozygous	c.638G>A	p.R213Q	AN3 CA	HTB-111™
VULVA						
primary	Carcinoma, squamous cell	homozygous	c.473G>A	p.R158H	SW 954	HTB-117™
primary	Leiomyosarcoma	heterozygous	c.733G>A	p.G245S	SK-LMS-1	HTB-88™
metastasis, lymph node	Carcinoma	heterozygous	c.797G>T	p.G266V	SW 962	HTB-118™

[†]For a description of the sequence variation nomenclature please refer to: *den Dunnen JT and Antonarakis SE (2000), Hum. Mutat. 15:7-12.*



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CB-032019-04

The mutation data was obtained from the Sanger Institute Catalogue Of Somatic Mutations In Cancer web site, <http://www.sanger.ac.uk/cosmic> Bamford et al (2004) The COSMIC (Catalogue of Somatic Mutations in Cancer) database and website. Br J Cancer, 91,355-358. ATCC and The Sanger Institute provide these data in good faith, but make no warranty, express or implied, nor assumes any legal liability or responsibility for any purpose for which the data are used. The ATCC trademark and trade name, any and all ATCC catalog numbers, and any other trademarks listed are trademarks of the American Type Culture Collection unless indicated otherwise. ATCC products are intended for laboratory research only. They are not intended for use in humans, animals or diagnostics.

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