

## Cell Lines Used as Tools and Models

Cell lines have many applications as phenotypic or process models, tools for production or expression, and dozens of other utilities. This index represents a sample of published applications for ATCC cell lines. References can be found in each cell line description in the cell biology section of the ATCC online catalog.

Application	Species	Name	ATCC <sup>®</sup> No.
<b>Transfected and Expressing</b>			
CTLA4Ig fusion protein	hamster, Chinese	CTLA4 Ig-24	CRL-10762 <sup>†</sup>
Granulocyte colony stimulating factor (G-CSF)	chicken	Con A-C1-VICK	CRL-12135 <sup>†</sup>
Granulocyte colony stimulating factor (G-CSF)	chicken	ConA-B1-VICK	CRL-12357 <sup>†</sup>
HER2/ <i>neu</i>	mouse	B104-1-1	CRL-1887
HER2/ <i>neu</i>	mouse	DHFR-G8	CRL-1915
Human 5HT1D receptor	mouse	Ltk-11	CRL-10422 <sup>†</sup>
Human 5HT2 receptor	mouse	L-NGC-5HT2	CRL-10287 <sup>†</sup>
Human adrenergic alpha1B receptor	mouse	L- $\alpha$ -1b	CRL-11139 <sup>†</sup>
Human CD36	hamster, Chinese	CHO-CD36	CRL-2092
Human colony stimulating factor (M-CSF)	hamster, Chinese	5/9 m $\alpha$ 3-18	CRL-10154 <sup>†</sup>
Human CR1	hamster, Chinese	35.6	CRL-10052 <sup>†</sup>
Human dopamine D2 receptor	mouse	A9 L hD2 S.C. 18	CRL-10225 <sup>†</sup>
Human erythropoietin	hamster, Syrian golden	BHK21-pcDNA3.1-HC	CRL-13001 <sup>†</sup>
Human gamma interferon	hamster, Chinese	HIIF-D	CRL-8200 <sup>†</sup>
Human glycosylation inhibiting factor (GIF)	human/human	31E9	HB-11052 <sup>†</sup>
Human ICAM-1	hamster, Chinese	CHO-ICAM-1	CRL-2093
Human pluripotent hematopoietic colony-stimulating factor (p-CSF)	human	1A6	CRL-2742
Human tissue plasminogen activator (t-PA)	hamster, Chinese	CHO 1-15 <sub>500</sub>	CRL-9606 <sup>†</sup>
IgE binding factor (lymphoma)	rat (T cell)/mouse	23B6	HB-8521 <sup>†</sup>
Mouse <i>c-myc</i> protein	hamster, Chinese	DUKX B1	CRL-9010 <sup>†</sup>
Neuroleukin	hamster, Chinese	CHO-1C6	CRL-1793
P element transposase	<i>Drosophila</i>	L-2/M $\delta$ 2-3	CRL-10191 <sup>†</sup>
p97 melanoma associated antigen	mouse	MTKP 97-12	CRL-8985 <sup>†</sup>
Rat GABAA receptor	human	WSS-1	CRL-2029
Rat m1 muscarinic acetylcholine receptor	hamster, Chinese	M1WT2	CRL-1984
Rat m1 muscarinic acetylcholine receptor	hamster, Chinese	M1WT3	CRL-1985
Rat m1 muscarinic acetylcholine receptor	hamster, Chinese	M1WT5	CRL-1986
Rat m3 muscarinic acetylcholine receptor	hamster, Chinese	M3WT4	CRL-1981
Rat m3 muscarinic acetylcholine receptor	hamster, Chinese	M3WT5	CRL-1982
Rat m3 muscarinic acetylcholine receptor	hamster, Chinese	M3WT8	CRL-1983
Soluble CHE-Fc	human	293/CHE-Fc	CRL-2368
Soluble suppression factor (SSF)	human (T cell)/human (T cell leukemia)	HM2	HB-8587 <sup>†</sup>
Wnt-3A conditioned medium	mouse	L Wnt-3A	CRL-2647
Control for L Wnt-3A cells	mouse	L Cells	CRL-2648
<b>Retroviral Packaging Lines</b>			
Amphotropic retroviral packaging line	dog	DAN	CRL-2130
Amphotropic retroviral packaging line	human	Bing	CRL-11554 <sup>†</sup>
Amphotropic retroviral packaging line	human	2A	CRL-12013 <sup>†</sup>
Amphotropic retroviral packaging line	human	ProPakA.6	CRL-12006 <sup>†</sup>
Amphotropic retroviral packaging line	human	ProPak-A.52 Clone #52	CRL-12479 <sup>†</sup>
Amphotropic retroviral packaging line	mouse	PT67	CRL-12284 <sup>†</sup>
Amphotropic retroviral packaging line	mouse	PA317 LXSN 16E6E7	CRL-2203
Amphotropic retroviral packaging line	mouse	PA317 LXSN 16E6	CRL-2204

\* Part of the NBL collection; see page 12. † Patent item; see page 12. See the ATCC online catalog for the complete description of a cell line.

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Amphotropic retroviral packaging line	mouse	PA317 LXS <sub>N</sub> 16E7	CRL-2205
Amphotropic retroviral packaging line	mouse	PA317 LXS <sub>N</sub> 6E6	CRL-2206
Amphotropic retroviral packaging line	mouse	PA317 LXS <sub>N</sub> 6E7	CRL-2207
Amphotropic retroviral packaging line	mouse	PA317	CRL-9078 <sup>†</sup>
Amphotropic retroviral packaging line	mouse	GP+envAM-12	CRL-9641 <sup>†</sup>
Ecotropic retroviral packaging line	human	BOSC 23	CRL-11270 <sup>†</sup>
Ecotropic retroviral packaging line	mouse	GP+E-86	CRL-9642 <sup>†</sup>
MoMuLV retroviral packaging line	mouse	Wgd5	CRL-1817
Polytropic retroviral packaging cell line	human	HP	CRL-12012 <sup>†</sup>
Retroviral packaging line	dog	DSDh	CRL-2131
Retroviral packaging line	mouse	PG13	CRL-10686 <sup>†</sup>
Xenotropic retroviral packaging cell line	human	HX	CRL-12011 <sup>†</sup>
Xenotropic retroviral packaging line	human	ProPak-X.36	CRL-12007 <sup>†</sup>

**Recombinant Retroviral Expression**

Amphotropic control retrovirus; g418 resistant	mouse	PA317 LXS <sub>N</sub>	CRL-2202
Retrovirus containing adenovirus 12S E1A gene	mouse	Psi2 12S6	CRL-1808
Retrovirus containing adenovirus 13S E1A gene	mouse	Psi2 13s1	CRL-1809
Retrovirus containing beta galactosidase gene	mouse	CRE BAG 2	CRL-1858
Retrovirus containing beta galactosidase gene	mouse	Ψ 2 BAG α	CRL-9560 <sup>†</sup>
Retrovirus containing human alkaline phosphatase gene	mouse	ψ 2 DAP	CRL-1949
Retrovirus containing human cyclin E-L gene	mouse	PA317 cyclin E-L	CRL-2187
Retrovirus containing human cyclin E-S gene	mouse	PA317 cyclin E-S	CRL-2188
Retrovirus containing vHa-ras oncogene	mouse	Raszip 6	CRL-1917
Retrovirus with a neomycin resistant gene	mouse	PG13/LN c8	CRL-10685 <sup>†</sup>
SNV helper virus	dog	DSN	CRL-9939 <sup>†</sup>

**Genetic Defects**

Defective in nucleotide excision repair	hamster, Chinese	UV41	CRL-1860
Defective in nucleotide excision repair	hamster, Chinese	UV20	CRL-1862
Defective in nucleotide excision repair	hamster, Chinese	UV5	CRL-1865
Defective in nucleotide excision repair	hamster, Chinese	UV24	CRL-1866
Defective in nucleotide excision repair	hamster, Chinese	UV135	CRL-1867
Defective in single strand break repair	hamster, Chinese	EM9	CRL-1861
Deficient for Src, Yes, and Fyn; immortalized with SV40 large T antigen	mouse	SYF	CRL-2459
Deficient for Yes and Fyn; immortalized with SV40 large T antigen	mouse	Src++	CRL-2497
Deficient for Yes and Fyn; immortalized with SV40 large T antigen	mouse	SYF + c-Src	CRL-2498
Deficient in dihydrofolate reductase	hamster, Chinese	CHO/dhFr	CRL-9096 <sup>†</sup>
Galactosyltransferase I deficient	hamster, Chinese	pgsB-618	CRL-2241
Galactosyltransferase I deficient	hamster, Chinese	pgsB-650	CRL-2243
Heparin sulfate deficient	hamster, Chinese	pgsD-677	CRL-2244
Heparin sulfate N-sulfotransferase deficient	hamster, Chinese	pgsE-606	CRL-2246
Ku autoantigen mutant	hamster, Chinese	xrs5	CRL-2348
Lacks GlcNAc glycosyl transferase function	hamster, Chinese	Lec1	CRL-1735
Methotrexate resistant	hamster, Chinese	LA 3-5	CRL-10101 <sup>†</sup>
Proline auxotroph	hamster, Chinese	Pro:5	CRL-1781
Reduced transport of CMP-sialic acid into Golgi	hamster, Chinese	Lec2	CRL-1736
Reduced transport of UDP-galactose into Golgi	hamster, Chinese	Lec8	CRL-1737
Sulfate transporter deficient	hamster, Chinese	pgsC-605	CRL-2245
Xylosyltransferase I deficient	hamster, Chinese	pgsA-745	CRL-2242

**Signal Transduction Model Systems****Apoptosis**

Brain; glioblastoma; p53+, p16-, p14ARF-	human	LN-18	CRL-2610
Brain; glioblastoma; p53+, p16-, p14ARF-	human	LN-229	CRL-2611
Colon; carcinoma; negligible p53 expression	human	RKO-E6	CRL-2578

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Colon; carcinoma; overexpression of GADD4	human	RKO-AS45-1	CRL-2579
Colon; carcinoma; control for RKO-E6 and RKO-AS45-1 cell lines	human	RKO	CRL-2577
Embryo; null for cytochrome c	mouse	Cyt c <sup>-/-</sup>	CRL-2613
Pituitary; nonfunctioning plurihormonal adenoma	human	HP75	CRL-2506
T lymphocyte; caspase-8 mutant	human	I 9.2	CRL-2571
T lymphocyte; FADD mutant	human	I 2.1	CRL-2572
T lymphocyte; control for I 9.2 and I 2.1	human	A3	CRL-2570
<b>IL-3 signaling pathway</b>			
Bone marrow; erythroblast	human	TF-1	CRL-2003
Bone marrow; erythroblast; control cell line for TF-1	human	TF-1a	CRL-2451
<b>Integrin signaling</b>			
Embryo; null for both FAK and p53	mouse	FAK <sup>-/-</sup>	CRL-2644
Embryo; positive for FAK but null for p53	mouse	FAK <sup>+/+</sup>	CRL-2645
<b>T cell receptor</b>			
T lymphocyte; PLC-gamma1 negative	human	J.γ1	CRL-2678
T lymphocyte; transfected with PLC-gamma1 expression vector; control for J.γ1 cells	human	J.γ1.WT	CRL-2679
T lymphocyte; transfected with ZAP-70 expression vector; control for P116 cells	human	P116.cl39	CRL-2677
T lymphocyte; ZAP-70 negative; model for T cell receptor signaling	human	P116	CRL-2676
<b>Transfection Hosts</b>			
Kidney; highly transfective	human	293T/17	CRL-11268 <sup>†</sup>
Liver; hepatocellular carcinoma; transfected with a CYP7 minigene/luciferase construct	human	HEP G2/2.2.1	CRL-11997 <sup>†</sup>
Tumor; adenovirus 12 induced; transfection host; exogenous gene expression	hamster, Syrian golden	MCB3901	CRL-9595 <sup>†</sup>
<b>Assay Systems</b>			
Androgen agonist/antagonist; luciferase responsive	human	MDA-kb2	CRL-2713
Carcinogens and mutagens	human	MCL-5	CRL-10575 <sup>†</sup>
Carcinogens and mutagens	human	AHH-1	CRL-8146 <sup>†</sup>
Drug resistance in ovarian cancer	human	NIH:OVCAR-3	HTB-161
<b>Models</b>			
<b>Low density lipoprotein receptor-related protein (LRP) model</b>			
Embryo; SV40 transformed	mouse	MEF-1	CRL-2214
Embryo; LRP deficient	mouse	PEA 10	CRL-2215
Embryo; LRP deficient	mouse	PEA 13	CRL-2216
<b>Microvascular endothelial cell model</b>			
Hemangioendothelioma	mouse	EOMA	CRL-2586
Hemangioendothelioma; expresses GFP	mouse	EOMA-GFP	CRL-2587
<b>Cre-Lox recombination model</b>			
Embryo; SV40 large T antigen transfected	mouse	MB19tsA, clone 2B2	CRL-2308
Control for MB19tsA, clone 2B2	mouse	MB16tsA, clone 1B5	CRL-2307
<b>Metastatic tumor model</b>			
Mammary gland tumor	mouse	4T1	CRL-2539
<b>DNA damage recognition and repair</b>			
Brain, glial cell; malignant glioblastoma	human	M059K	CRL-2365
Brain, glial cell; malignant glioblastoma	human	M059J	CRL-2366
<b>In vivo glioma models</b>			
Brain; gliosarcoma; expresses beta galactosidase	rat	C6/LacZ	CRL-2199
Brain; gliosarcoma; expresses beta galactosidase	rat	9L/lacZ	CRL-2200
Brain; gliosarcoma; expresses beta galactosidase	rat	C6/lacZ7	CRL-2303
Brain; undifferentiated malignant glioma	rat; fetal	F98	CRL-2397
Brain; undifferentiated malignant glioma	rat; fetal	RG2	CRL-2433
<b>Immunotherapy protocols</b>			
Ascites; malignant fibrosarcoma; dibenzanthracene	mouse	Sal	CRL-2543

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Application	Species	Name	ATCC® No.
induced			
Colon; carcinoma	mouse	CT26.WT	CRL-2638
Colon; carcinoma	mouse	CT26.CL25	CRL-2639
<b>Feeder Layer Cell Lines</b>			
Bone marrow; stroma; HPV-16 E6/E7 transformed	human	HS-5	CRL-11882 <sup>†</sup>
Mammary gland tumor	rat	LA7	CRL-2283
Embryo	mouse	3T3-Swiss albino	CCL-92
Lung	human	MRC-5	CCL-171
Embryo	mouse	STO	CRL-1503
<b>Hybridoma Fusion Partners</b>			
B cell	human	36	CRL-8193 <sup>†</sup>
B cell	human	A6	CRL-8192 <sup>†</sup>
B cell	human	F3B6	HB-8785 <sup>†</sup>
B cell	human	GK-5	CRL-1834
B cell	human	HuNS1	CRL-8644 <sup>†</sup>
B cell	human	K6H6/B5	CRL-1823
B cell	human	KR-12	CRL-8658 <sup>†</sup>
B cell	human	LTR228	HB-8502 <sup>†</sup>
B cell	human	MC/CAR	CRL-8083 <sup>†</sup>
B cell	human	MC/CAR-Z2	CRL-8147 <sup>†</sup>
B cell	human	SHM-D33	CRL-1668
B cell	human	SKO-007	CRL-8033-1 <sup>†</sup>
B cell	human	SKO-007 [clone J3]	CRL-8033-2 <sup>†</sup>
B cell	human	WI-L2-729HF2	CRL-8062 <sup>†</sup>
B cell	human	WIL2-NS	CRL-8155 <sup>†</sup>
B cell	human	WIL2-5	CRL-8885 <sup>†</sup>
B cell	mouse	45.6.TG1.7	CRL-1608
B cell	mouse	FO	CRL-1646
B cell	mouse	FOX-NY	CRL-1732
B cell	mouse	P3/NSI/1-Ag4-1 (NS-1)	TIB-18
B cell	mouse	P3X63Ag8	TIB-9
B cell	mouse	P3X63Ag8.653	CRL-1580
B cell	mouse	P3X63Ag8U.1	CRL-1597
B cell	mouse	RPC5.4	TIB-12
B cell	mouse	S194/5.XXO.BU.1	TIB-20
B cell	mouse	Sp2/01-Ag	CRL-8006 <sup>†</sup>
B cell	mouse	Sp2/0-Ag14	CRL-1581
B cell	mouse	Sp2/0-Ag14	CRL-8287 <sup>†</sup>
B cell	mouse	Sp2/mIL-6	CRL-2016
B cell	rat	Y3-Ag 1.2.3	CRL-1631
B cell	rat	YB2/0	CRL-1662
T cell	human	CEM-CM3	TIB-195
T cell	mouse	AKR1.G.1.OVA <sup>®</sup> .1.26	TIB-232
T cell	mouse	BW5147.G.1.4	TIB-48
T cell	mouse	BW5147.G.1.4.OUA <sup>®</sup> .1	CRL-1588
T cell	mouse	EL4.BU	TIB-40
T cell	rat	C58(NT)D.1.G.OVA <sup>®</sup> .1	TIB-236
<b>Factor Assay Systems</b>			
Ciliary neurotrophic factor (CNTF)	human	TF-1.CN5a.1	CRL-2512
Colony stimulating factor (CSF)	human	KG-1	CCL-246
Control for KG-1, does not respond to CSF	human	KG-1a	CCL-246.1
Fibroblast growth factor (FGF)	bovine	FBHE	CRL-1395
Fibroblast growth factor (FGF)	mouse	SR-4987	CRL-2028
Human bone morphogenetic protein-2 (rhBMP-2)	mouse	W-20-17	CRL-2623
IL-1	human	A375.S2	CRL-1872
IL-1	mouse	D10.G4.1	TIB-224
IL-2 and IL-4 (BSF-1)	mouse	HT-2 clone A5E	CRL-1841
IL3 , G-CSF , GM-CSF	human	TF-1	CRL-2003

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Species	Starting Phenotype	Ending Phenotype	Tissue/Disease	Name	ATCC <sup>®</sup> No.
<b>Differentiating</b>					
<b>Bone</b>					
mouse	preosteoblast	osteoblast	bone, calvaria	MC3T3-E1 Subclone 4	CRL-2593
mouse	preosteoblast	osteoblast	bone, calvaria	MC3T3-E1 Subclone 14	CRL-2594
mouse	preosteoblast	control for MC3T3-E1 Subclones 4 and 14	bone, calvaria	MC3T3-E1 Subclone 24	CRL-2595
mouse	preosteoblast	control for MC3T3-E1 Subclones 4 and 14	bone, calvaria	MC3T3-E1 Subclone 30	CRL-2596
human	preosteoblast; SV40 large T antigen transfected	osteoblast	bone	hFOB 1.19	CRL-11372 <sup>†</sup>
mouse	stromal precursor; multipotent	osteocytes, chondrocytes, and adipocytes	bone marrow	D1 ORL UVA	CRL-12424 <sup>†</sup>
mouse	osteoblast	adipocyte	bone marrow	7F2	CRL-12557 <sup>†</sup>
<b>Breast</b>					
human	malignant breast tumor cells	mature breast cell phenotype	adenocarcinoma; mammary gland	AU565	CRL-2351
<b>Endothelial</b>					
mouse	endothelial	endothelial cell differentiation	yolk sac	C166	CRL-2581
mouse	endothelial	endothelial cell differentiation	yolk sac	C166-GFP	CRL-2583
mouse	testicular teratoma	parietal endoderm	embryonal carcinoma	F9	CRL-1720
<b>Epithelial</b>					
human	bronchus; viral immortalized	squamous differentiation	lung	BEAS-2B	CRL-9609 <sup>†</sup>
human	colon epithelium	enterocytic differentiation; expresses etinoic acid binding proteins I and II; keratin positive	colon	Caco-2	HTB-37
mouse	hepatocyte, tsSV-40 immortalized	various phenotypes; induction of liver transcription factor; increase in albumin mRNA	liver	H2.35	CRL-1995
rat	lung epithelium	squamous epithelium (nonkeratinized)	lung	RL-65	CRL-10354 <sup>†</sup>
<b>Hematopoietic</b>					
human	promyelocyte	granulocyte, monocyte, or macrophage	acute promyelocytic leukemia	HL-60	CCL-240
human	histiocyte/monocyte	macrophage	histiocytic lymphoma	U-937	CRL-1593.2
human	erythroblast	macrophage-like	erythroleukemia, bone marrow	TF-1	CRL-2003
human	monoblast	macrophage-like	peripheral blood	GDM-1	CRL-2627
human	erythroblast	macrophage-like	bone marrow; erythro-leukemia	HEL 92.1.7	TIB-180
human	monocyte	macrophage	acute monocytic leukemia	THP-1	TIB-202
mouse	erythroblast	hemoglobin synthesis, erythroid differentiation	spleen, leukemia	BB88	TIB-55
mouse	erythroblast	hemoglobin synthesis, erythroid differentiation	spleen, leukemia	D1B	TIB-56
mouse	neutrophil progenitor	neutrophil	bone marrow Clone 2.1	MPRO Cell Line,	CRL-11422 <sup>†</sup>
mouse	lymphohematopoietic stem cell	B-lymphocyte, erythrocyte, neutrophil, macrophage, mast cell, megakaryocyte	bone marrow	EML Cell Line, Clone 1	CRL-11691 <sup>†</sup>
<b>Muscle</b>					
mouse	fibroblast	myoblast	embryo	C3H/10T1/2, Clone 8	CCL-226
<b>Neural</b>					
human	fibroblast	neurons	embryonal carcinoma	NTERA-2 cl.D1 (NT2/D1)	CRL-1973
mouse	teratocarcinoma	neural and glial-like cells	embryonal carcinoma	P19	CRL-1825
mouse	fibroblast	astrocyte	embryo	Swiss SFME	CRL-9391 <sup>†</sup>
mouse	neural stem cell	astrocyte	embryo	BALB SFME	CRL-9392 <sup>†</sup>
rat	adrenal gland	neuronal phenotype	pheochromocytoma	PC-12	CRL-1721

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