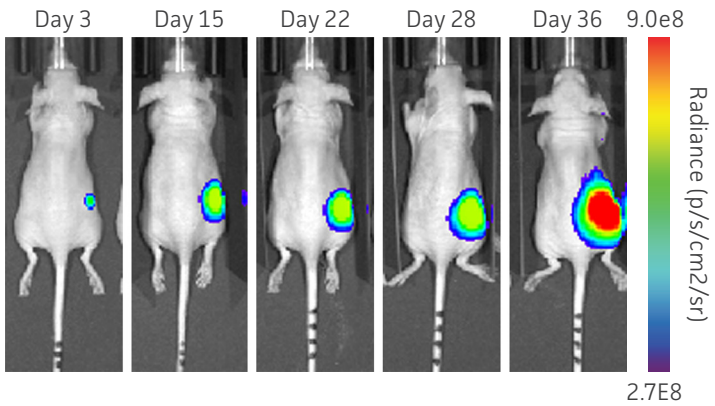
ATCC

PRODUCT SPOTLIGHT

LUCIFERASE CELL LINES

Imprecise in vivo animal models are a daily reality for cancer biologists. They cloud the results of biological mechanism studies and drug development work because it is often difficult to image and quantify engrafted tumors. Luciferase reporter cell lines provide a relatively simple, robust, and highly sensitive means to measure biological processes and to assess drug efficacy in animal models through bioluminescence imaging. They offer new tools for both in vitro luminescent assays and in vivo live animal bioluminescent imaging.

- Used to establish in vivo tumor models
- Quantifiable luciferase expression
- Verified Luc2 expression stability
- Derived from commonly used human and mouse cell lines
- Developed by single cell cloning
- High signal/background ratio



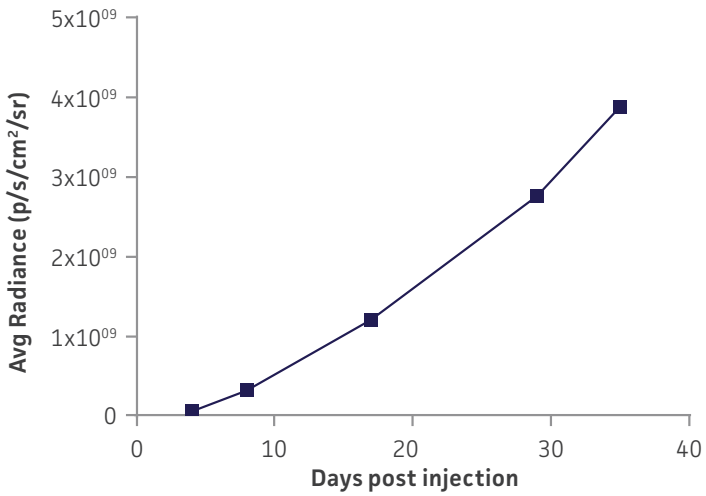


Figure 1: Luciferase-expressing reporter cell lines can be used in in vivo animal bioluminescent imaging. IDH1 Mutant U-87 Isogenic-Luc2 cells (3×10^6) were injected subcutaneously into the dorsal region near the thigh of female nude mice. Tumor growth was monitored weekly using an optical bioluminescence imaging system. In vivo bioluminescence imaging demonstrated the progression of tumors, and the utility of luciferase-expressing reporter cell lines (here IDH1 Mutant U-87 Isogenic-Luc2) in xenograft animal model studies.

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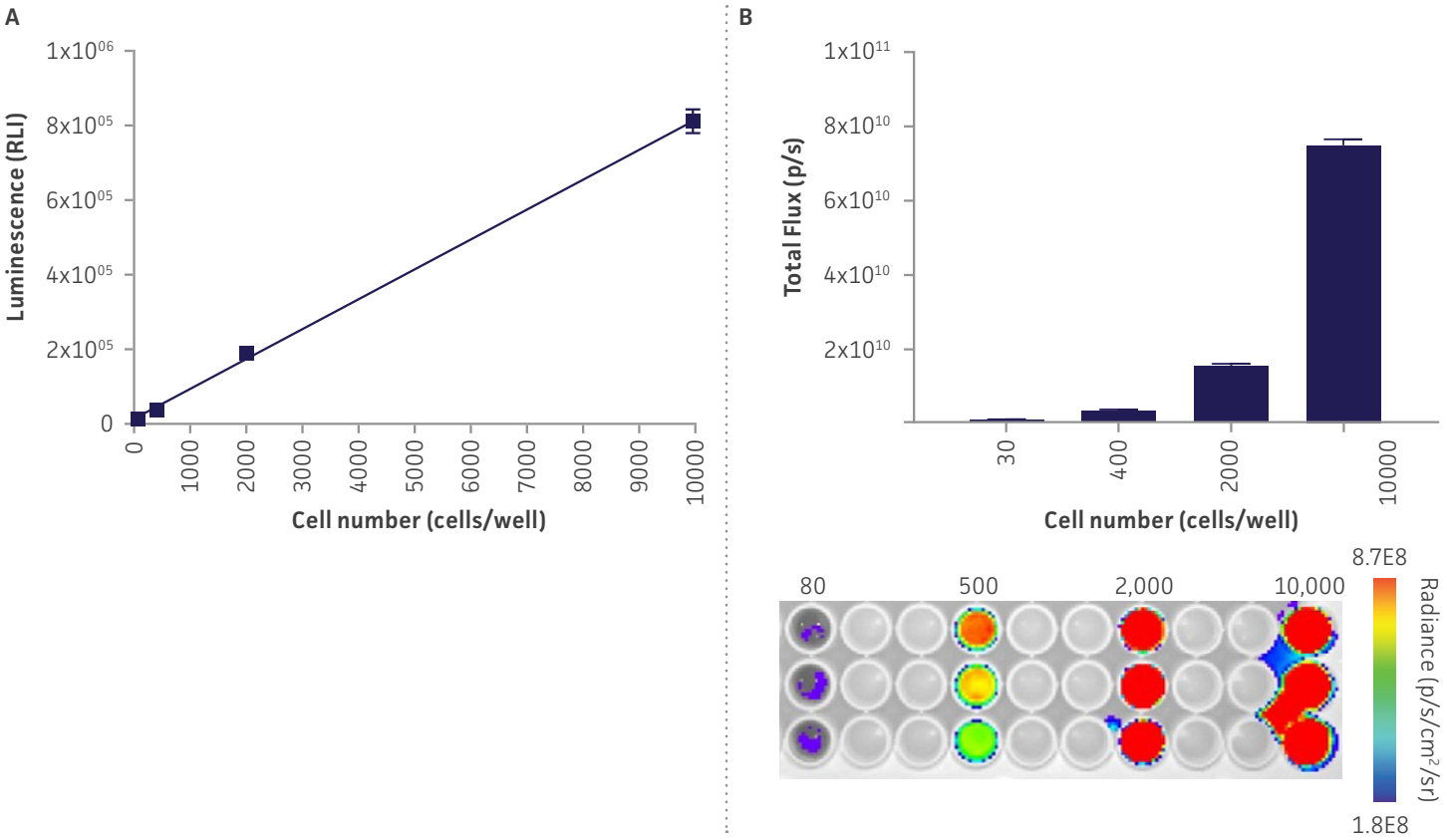

Figure 2: Luciferase-expressing reporter cells demonstrate linear, quantifiable signal in in vitro bioluminescence studies. IDH1 mutant-U-87 Isogenic-Luc2 were seeded in a 96-well plate at indicated cell numbers per well, and commercially prepared luciferase substrate preparation was added to the indicated wells. The luminescence of the plate was read within 10 minutes using a luminescence plate reader (A) and determined to have a linear correlation of bioluminescence intensity with cell numbers. (B) The plate was imaged using in vivo optical imaging system to quantify that photons emitted per cell. The resulting bioluminescence curves indicate that the luciferase-expressing reporter cells can be used to assess cell viability in live, unfixed cells.

LUCIFERASE-LABELED CELL LINES

ATCC maintains luciferase-expressing reporter cell lines derived from the most commonly used cells in molecular imaging studies. The addition of the luciferase reporter to these cell lines increases their utility by allowing for real-time imaging of the tumors.

ISOGENIC LUCIFERASE-LABELED CELL LINES

By utilizing the CRISPR/Cas9 gene editing, ATCC offers isogenic cell models harboring critical drug-resistant or -sensitive mutations that also express the luciferase reporter. These advanced models can be used in in vivo studies to identify novel, personalized treatment regimens.

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Table 1: Luciferase-Labeled Human Cell Lines

ATCC® No.	Designation	Disease	Tissue
CCL-240-LUC2™	HL-60-Luc2	Leukemia	Blood
CCL-243-LUC2™	K-562-Luc2	Chronic Myelogenous Leukemia	Bone Marrow
HTB-96-LUC2™	U-2 OS-Luc2	Osteosarcoma	Bone
CRL-2003-LUC2™	TF-1-Luc2	Leukemia	Bone Marrow
CRL-2003IG-LUC2™	IDH2 R140Q mutant TF-1-Luc2	Leukemia	Bone Marrow
HTB-14-LUC2™	U-87 MG-Luc2	Glioma	Brain
HTB-14IG-LUC2™	IDH1 R132H mutant U-87MG-Luc2	Glioma	Brain
HTB-22-LUC2™	MCF7-Luc2	Adenocarcinoma	Breast
CCL-225-LUC2™	HCT-15-Luc2	Human Dukes' type C, colorectal adenocarcinoma	Colon
CCL-228-LUC2™	SW480-Luc2	Human Dukes' type B, colorectal adenocarcinoma	Colon
CCL-247-LUC2™	HCT 116-Luc2	Carcinoma	Colon
CCL-121-LUC2™	HT-1080-Luc2	Fibrosarcoma	Connective
CCL-185-LUC2™	A549-Luc2	Lung Carcinoma	Lung
CCL-185IG-LUC2™	EML4-ALK Fusion A549-Luc2	Lung Carcinoma	Lung
CRL-1469-LUC2™	PANC-1-Luc2	Carcinoma, Epithelioid	Pancreas
HTB-43-LUC2™	FaDu-Luc2	Human Squamous Cell Carcinoma	Pharynx
CRL-1435-LUC2™	PC-3-Luc2	Adenocarcinoma	Prostate
CRL-1740-LUC2™	LNCaP clone FGC-Luc2	Carcinoma	Prostate
CRL-1555-LUC2™	A-431-Luc2	Carcinoma, Epidermoid	Skin
CRL-1619-LUC2™	A375-Luc2	Melanoma	Skin
CRL-1619IG-1-LUC2™	KRAS G13D A375-Luc2	Melanoma	Skin
CRL-1619IG-2-LUC2™	NRAS Q61K A375-Luc2	Melanoma	Skin
CRL-1739-LUC2™	AGS-Luc2	Human Gastric Adenocarcinoma	Stomach

Table 2: Luciferase-Labeled Mouse Cell Lines

ATCC® No.	Designation	Disease	Tissue
TIB-39-LUC2™	EL4-Luc2	Lymphoma	Blood
CRL-2539-LUC2™	4T1-Luc2	Breast Cancer	Breast
CRL-1642-LUC2™	LL/2-Luc2	Lung Carcinoma	Lung
CRL-6323-LUC2™	B16-F1-Luc2	Melanoma	Skin
CRL-6475-LUC2™	B16-F10-Luc2	Melanoma	Skin

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