



Ion Channel Stable Cell Lines

Catalog Number	Product	Amount
<u>SC022-RB</u>	HEK293- CFTR cell line (chloride channel) with RFP and Blastocidin dual marker	1 vial of cells (2 x 10 ⁶ cells) in 80% DMEM, 10% FBS, 10% DMSO
<u>SC023-RB</u>	HEK293- CLCN2 cell line (chloride channel) with RFP and Blastocidin dual marker	
<u>SC024-RB</u>	HEK293- TRPC3 cell line (calcium channel) with RFP and Blastocidin dual marker	
<u>SC025-RB</u>	HEK293- KCNN4 cell line (potassium channel) with RFP and Blastocidin dual marker	
<u>SC026-RB</u>	HEK293- ATP2B2 cell line (calcium channel) with RFP and Blastocidin dual marker	
<u>SC027-RB</u>	HEK293- TRPV1 cell line (non-selective cation channel) with RFP and Blastocidin dual marker	

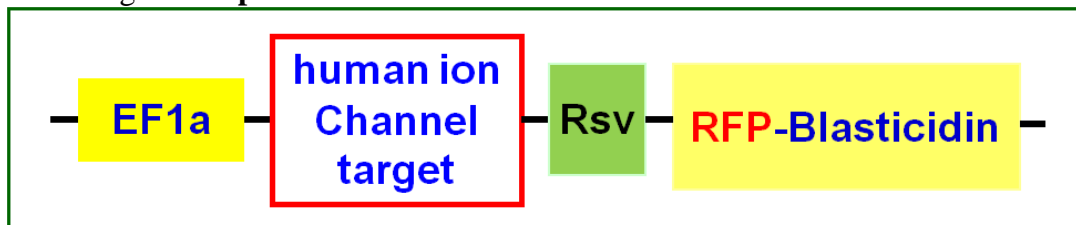
Storage: store in liquid nitrogen upon receipt.

Product Description

The HEK293 Cell Line is a permanent line established from primary embryonic human kidney transformed with sheared human adenovirus type 5 DNA. The expressed E1A adenovirus gene allows these cells to produce very high levels of protein.

The human ion-channel stable cell lines are derived from the adhesive enhance HEK293 cells, transformed by the expression lentivirus expressing a well characterized human ion-channel target. The expression cassette (see the **structure scheme** below) was stably integrated into HEK293 cells. Each human ion-channel target's codon sequence is natively expressed (without any tags) under an enhanced EF1a promoter. The cell lines also have a **RFP-blasticidin**, (fluorescent-antibiotic) fusion dual marker under RSV promoter. Therefore, **each cell also demonstrates RFP signal** which can be visualized under fluorescent microscope. Each target genomic integration was verified by gPCR, and for target expression by Western blot.

The integrated **expression cassette** in HEK293 cell:





1. Ion-channel targets:

The codon sequence of each human ion-channel gene was natively expressed in each cell line. All target sequences were fully verified (**click the target ID below** for the sub-cloned codon sequences which is identical to the the CDS region sequences in NCBI database).

Catalog #	Target ID	Target Name
SC022-RB	NM_000492	CFTR (cystic fibrosis transmembrane conductance regulator)
SC023-RB	NM_004366	CLCN2 (chloride channel, voltage-sensitive 2)
SC024-RB	NM_003305	TRPC3 (transient receptor potential cation channel, subfamily C, member 3)
SC025-RB	NM_002250.2	KCNN4 (potassium intermediate/small conductance calcium-activated channel, subfamily N)
SC026-RB	NM_001001331.2	ATP2B2 (ATPase, Ca ⁺⁺ transporting, plasma membrane 2)
SC027-RB	NM_080704.3	TRPV1 (transient receptor potential cation channel, subfamily V, member 1)

2. Ion-Channel target information:

- **CFTR:**

This gene encodes a protein involved in multi-drug resistance. It belongs to a ATP-binding cassette (ABC) subfamily. The ABC proteins transport various molecules across extra- and intra-cellular membranes. The CFTR functions as a chloride channel and controls the regulation of other transport pathways. It is characterized in chronic bronchopulmonary disease (with recurrent respiratory infections), pancreatic insufficiency (which leads to malabsorption and growth retardation) and elevated sweat electrolytes. Mutations in this gene are associated with the autosomal recessive disorders cystic fibrosis and congenital bilateral aplasia of the vas deferens.

- **CLCN2:**

This gene encodes a voltage-gated chloride channel. The encoded protein is a transmembrane protein that maintains chloride ion homeostasis in various cells. Defects in this gene may be a cause of certain epilepsies.

- **TRPC3:**



The protein encoded by this gene is a membrane protein that can form a non-selective channel permeable to calcium and other cations. The encoded protein appears to be induced to form channels by a receptor tyrosine kinase-activated phosphatidylinositol second messenger system and also by depletion of intracellular calcium stores.

- **KCNN4:**

The protein encoded by this gene is part of a potentially heterotetrameric voltage-independent potassium channel that is activated by intracellular calcium. Activation is followed by membrane hyperpolarization, which promotes calcium influx. The encoded protein may be part of the predominant calcium-activated potassium channel in T-lymphocytes. This gene is similar to other KCNN family potassium channel genes, but it differs enough to possibly be considered as part of a new subfamily.

- **ATP2B2:**

The protein belongs to the family of P-type primary ion transport ATPases characterized by the formation of an aspartyl phosphate intermediate during the reaction cycle. These enzymes remove bivalent calcium ions from eukaryotic cells against very large concentration gradients and play a critical role in intracellular calcium homeostasis.

- **TRPV1:**

Capsaicin, the main pungent ingredient in hot chili peppers, elicits a sensation of burning pain by selectively activating sensory neurons that convey information about noxious stimuli to the central nervous system. The protein encoded is a receptor for capsaicin and is a non-selective cation channel that is structurally related to members of the TRP family of ion channels. This receptor is also activated by increases in temperature in the noxious range, suggesting that it functions as a transducer of painful thermal stimuli in vivo.

Culture procedures

1. Thaw the frozen vial of cells quickly in a 37°C water bath (1~3min), decontaminate the outside of the vial with 70% ethanol.
2. Transfer the entire contents of the cryovial into a T-75 cm² flask containing 20 ml of pre-warmed complete medium. Incubate the cells overnight in a 37°C incubator, with 5% CO₂.
3. On the following day, replace the medium with 20 ml of prewarmed, complete medium.
4. Incubate the cells and monitor cell density.



5. Pass cells (1:5 to 1:10 dilution) using 0.25% Trypsin-EDTA solution when the culture reaches ~90% confluent.
6. Freeze cells at a density of $\sim 3 \times 10^6$ cells/ml using 90% complete medium with 10% DMSO.

Complete medium

DMEM (high glucose)
2mM L-glutamine
10% Fetal Bovine Serum (FBS)
0.1 mM MEM Non-Essential Amino Acids (NEAA)
1% Pen-strep / Antibiotic-antimycoplasma

- Optional to add: final **10 ug/ml** of Blastcidin (Note: do not add Blastcidin at 1st time thaw culture. This final Blastcidin concentration is also depend on the potency of its brand)

Quality Control

Each vial contains $\sim 2 \times 10^6$ cells with >95% viability before freezing. Cells are verified to be free of bacteria, viruses, and mycoplasma.

Warranty and user terms

- This product is warranted to perform as described when used in accordance with this manual. GenTarget's sole remedy for breach of warranty should be, at the option of GenTarget, to repair or replace the product if this product does not meet the stated quality standard.
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- GenTarget is not liable, and does not have any responsibility or liability, whatsoever for any direct and indirect, consequential, or other damages resulting from using this Product.
- Gentarget **do not** provide the protected reporter's sequences information for all our cell line products.

Attachment: GenTarget' s pre-made stable cell line list:

SC001	HEK293-GFP stable cells
SC002-Bsd	luciferase (firefly), HEK293 stable cells (Blasticidin)
SC002-GB	luciferase (firefly), HEK293 stable cells (GFP-Blasticidin)
SC002-GP	luciferase (firefly), HEK293 stable cells (GFP-Puromycin)
SC002-Neo	luciferase (firefly), HEK293 stable cells (Neomycin)
SC002-Puro	luciferase (firefly), HEK293 stable cells (Puromycin)
SC002-RB	luciferase (firefly), HEK293 stable cells (RFP, Blasticidin)
SC002-RP	luciferase (firefly), HEK293 stable cells (RFP-Puromycin)
SC002T-RP	HEK293T / Luciferase stable cells (RFP-Puromycin)
SC003	LacZ (RFP) Expression stable cell line
SC004-Bsd	CRE stable cells with Blasticidin marker



SC004-GP	CRE stable cells with GFP-Puromycin dual marker
SC004-Neo	CRE stable cells with Neomycin marker
SC004-Puro	CRE stable cells with Puromycin marker
SC004-RB	CRE stable cells with RFP-blasticidin dual marker
SC004-RP	CRE stable cells with RFP-Puromycin dual marker
SC005-Bsd	HEK293-TetR (Bsd)
SC005-GB	HEK293-TetR (GFP-Bsd)
SC005-Hygro	HEK293-TetR (Hygro)
SC005-Neo	HEK293-TetR (Neo)
SC005-Puro	HEK293-TetR (Puro)
SC005-RB	HEK293-TetR (RFP-Bsd)
SC005-RP	HEK293-TetR (RFP-Puro)
SC006	Flp recombinase expression HEK293 stable cell
SC007	HEK293-RFP stable cells
SC008	GFP-LacZ & RFP stable cells



SC009	GFP & RFP HEK293 stable cells
SC010	HEK293-CFP stable cells
SC011	HEK293-YFP stable cells
SC012	TAT stable cells
SC013	Glutamine Synthesis stable cells
SC014	Inducible h P53 stable cells
SC015	h OCT3/4 stable cells
SC016	h LIN28 stable cells
SC018-Bsd	Color Switch, CRE report cell line: HEK293-loxP-GFP-RFP (Bsd)
SC018-Neo	Color Switch, CRE report cell line: HEK293-loxP-GFP-RFP Neo)
SC018-Puro	Color Switch, CRE report cell line: HEK293-loxP-GFP-RFP (Puro)
SC020-Puro	luciferase (Renilla), HEK293 stable cells (Puromycin)
SC020-RP	luciferase (Renilla), HEK293 stable cells (RFP-Puromycin)
SC021-GB	Luciferase (firefly) and CRE co-expression stable cell line (GFP-Blasticidin)
SC021-Puro	Luciferase (firefly) and CRE co-expression stable cell line (puromycin)



SC021-RP	Luciferase (firefly) and CRE co-expression stable cell line (RFP-puromycin)
SC022-RB	HEK293-CFTR cell line with RFP and Blasticidin dual marker
SC023-RB	HEK293-CLCN2 cell line with RFP and Blasticidin dual marker
SC024-RB	HEK293-TRPC3 cell line with RFP and Puromycin dual marker
SC025-RB	HEK293-KCNN4 cell line with RFP and Puromycin dual marker
SC026-RB	HEK293-ATP2B2 cell line with RFP and Puromycin dual marker
SC027-RB	HEK293-TRPV1 cell line with RFP and Puromycin dual marker
SC028	Inducible RFP HEK293 stable cell line
SC029	inducible RFP HEK293 stable cell line with GFP marker
SC030	inducible GFP HEK293 stable cell line with RFP marker
SC031-Puro	Hela-RFP stable cells
SC032-Bsd	Luciferase (firefly), Hela stable cells (Blasticidin)
SC032-GB	Luciferase-2A-GFP, Hela stable cells (Blasticidin)
SC032-GN	Luciferase-2A-GFP, Hela stable cells (Neomycin)
SC032-GP	Luciferase-2A-GFP, Hela stable cells (Puromycin)



SC032-Puro	Luciferase (firefly), Hela stable cells (Puromycin)
SC032-RB	Luciferase-2A-RFP, Hela stable cells (Blasticidin)
SC032-RN	Luciferase-2A-RFP, Hela stable cells (Neomycin)
SC032-RP	Luciferase-2A-RFP, Hela stable cells (Puromycin)
SC033	Inducible GFP HEK293 stable cell line
SC034-Bsd	Hela-GFP stable cells (Blasticidin)
SC034-Puro	Hela-GFP stable cells (Puromycin)
SC035-Puro	Hela-TetR (Puro) stable cells
SC036	Inducible GFP Hela stable cell line
SC037	Inducible RFP Hela stable cell line
SC038-GB	Hela-rtTA (GFP-Bsd) stable cells
SC038-GP	Hela-rtTA (GFP-Puro) stable cells
SC038-RB	Hela-rtTA (RFP-Bsd) stable cells
SC039-Bsd	CHO-GFP stable cells (Blasticidin)
SC039-Puro	CHO-GFP stable cells (Puromycin)



SC040-Bsd	MDA-MB-231 / GFP (Bsd) Stable Cell Line
SC040-Puro	MDA-MB-231 / GFP (Puro) Stable Cell Line
SC040-TetR	MDA-MB-231 / TetR (Puro) stable cells
SC041	MDA-MB-231 / Luciferase-2A-RFP Stable Cell Line
SC042	SH-SY5Y / GFP (Puromycin) stable cell line
SC043-Bsd	A549 / GFP stable cells (Blasticidin)
SC043-Cas9-GP	A549 / Cas9 (GFP-Puro) Stable Cell Line
SC043-Cas9-Puro	A549 / Cas9 (Puro) Stable Cell Line
SC043-Cas9-RP	A549 / Cas9 (RFP-Puro) Stable Cell Line
SC043-LG	A549 / Luciferase-2A-GFP (Puromycin) stable cell line
SC043-Luc	A549 / Luciferase (Puromycin) stable cell line
SC043-TetR	A549 / TetR (Puro) stable cells
SC044	MDA-MB-231 / Luciferase-2A-GFP Stable Cell Line
SC045-Cas9-Bsd	Hela / Cas9 (Bad) Stable Cell Line
SC046	SH-SY5Y / RFP (Puromycin) stable cell line



SC047-GB	RKO / GFP Stable Cell Line (Blasticidin)
SC047-TetR	RKO / TetR (Bsd) Stable Cell Line
SC048	Jurkat T Cell /Firefly Luciferase (Puro) Stable Cell line
SC049-1	Jurkat T / GFP Stable Cell (EF1a Promoter)
SC049-2	Jurkat T / GFP Stable Cell (Flt1 Promoter)
SC049-3	Jurkat T / GFP Stable Cell (CD43 Promoter)
SC049-4	Jurkat T / GFP Stable Cell (CD68 Promoter)
SC049-5	Jurkat T / GFP Stable Cell (Survivin Promoter)
SC050-G	MCF7 / GFP (Puromycin) Stable Cell Line
SC050-L	MCF7 / Firefly Luciferase (Puro) Stable Cell Line
SC051-G	ZR-75-1 / GFP (Puromycin) Stable Cell Line
SC051-L	ZR-75-1 / Firefly Luciferase (Puro) Stable Cell Line
SC053-L	NCI-H1299 / Luciferase (Puro) Stable Cells
SC054-L	CFPAC-1 / Luciferase (Puro) Stable Cells
SC055-G	MLLB2 / GFP (Neomycin) stable cell line



SC056-TetR	mouse CT26 / TetR (Bsd) stable cells
SC057-Bsd	MDA-MB-231 / RFP (Bsd) Stable Cell Line
SC058	HEK293 / uGFP (unstable GFP) Stable Cells
SC059-Bsd	MDA-MB-231 / Luciferase (Bsd) Stable Cell Line
SC059-Puro	MDA-MB-231 / Luciferase (Puro) Stable Cell Line
SC060-G	Human B lymphocyte / GFP Stable Cells
SC060-LG	Human B lymphocyte (Luciferase / GFP) Stable Cells
SC060-LR	Human B lymphocyte (Luciferase / RFP) Stable Cells
SC060-R	Human B lymphocyte / RFP Stable Cells
SC061-G	Mouse CT26 / GFP Stable Cells
SC061-LG	Mouse CT26 (Luciferase & GFP) Stable Cells
SC061-LR	Mouse CT26 (Luciferase & RFP) Stable Cells
SC061-PDL1	Mouse CT26 / PDL1 Stable Cells
SC061-R	Mouse CT26 / RFP Stable Cells
SC062-G	Human AsPC1 / GFP Cell Line



SC062-LG	Human AsPC1 / Luciferase and GFP Cell Line
SC062-LR	Human AsPC1 / Luciferase and RFP Cell Line
SC062-Luc	Human AsPC1 / Luciferase Cell Line
SC062-R	Human AsPC1 / RFP Cell Line
SC063-LR	Mouse MOPC315 / Luciferase & RFP Cell Line
SC063-Luc	mouse MOPC315 / Luciferase Cell Line
SC063-R	Mouse MOPC315 / RFP Cell Line
SC064-G	Human HaCAT / GFP (Puro) Cell Line
SC064-TetR	Human HaCAT / TetR (Bsd) Cell Line
SC065-G	Mouse MB49 / GFP Stable Cells
SC065-LG	Mouse MB49 / Luciferase & GFP Stable Cells
SC065-LR	Mouse MB49 / Luciferase & RFP Stable Cells
SC065-R	Mouse MB49 / RFP Stable Cells
SC066-G	Human ES2 / GFP Stable Cells
SC066-LG	Human ES2 / Luciferase & GFP Stable Cells



SC066-LR	Human ES2 / Luciferase & RFP Stable Cells
SC066-R	Human ES2 / RFP Stable Cells
SC066-TetR	Human ES2 / TetR (Puro) Stable Cells
SC067-G	Human SW403 / GFP Stable Cells
SC067-Luc	Human SW403 / Luciferase Stable Cells
SC068-G	Human PANC-1 / GFP (Puro) Cell Line
SC068-LG	Human PANC-1 / Luciferase & GFP (Puro) Cell Line
SC068-Luc	Human PANC-1 / Luciferase (Puro) Cell Line
SC068-R	Human PANC-1 / RFP (Puro) Cell Line
SC069-G	Human 786-O / GFP Cell Line
SC069-LG	Human 786-O / Luciferase & GFP Cell Line
SC069-luc	Human 786-O / Luciferase Cell Line
SC070-G	Hela-nucGFP stable cells
SC070-R	Hela-nucRFP stable cells
SC072-G	Human T47D / GFP Stable Cells



SC072-LG	Human T47D / Luciferase & GFP Stable Cells
SC072-Luc	Human T47D / Luciferase Stable Cells
SC073-GB	Human MCF10A / GFP (Bsd) Stable Cells
SC073-GP	Human MCF10A / GFP (Puro) Stable Cells
SC073-Luc	Human MCF10A / Luciferase (Puro) Stable Cells
SC074-GB	Human SW1990 / GFP (Bsd) Stable Cells
SC074-GP	Human SW1990 / GFP (Puro) Stable Cells
SC074-LG	Human SW1990 / Luciferase & GFP (Puro) Stable Cells
SC074-Luc	Human SW1990 / Luciferase (Puro) Stable Cells