eurofins | Discovery Services

PRODUCT DATASHEET

ChemiScreen™ SST_3 Somatostatin Receptor Stable Cell Line

CATALOG NUMBER: HTS171C

CONTENTS: 2 vials of mycoplasma-free cells, 1 mL per vial.

STORAGE: Vials are to be stored in liquid N_2.

BACKGROUND

ChemiScreen cell lines are constructed in the Chem-1 host, which supports high levels of functional receptor expression on the cell surface. Chem-1 cells contain high endogenous levels of Gα15, a promiscuous G protein, allowing most receptors to couple to the calcium signaling pathway.

Somatostatin is a 14 or 28 amino acid regulatory peptide that inhibits hormone secretion from the pituitary, pancreas, and other endocrine sites. A family of 6 GPCRs, SST_1, SST_{2A}, SST_{2B}, SST_3, SST_4 and SST_5, mediate the biological activity of somatostatins. The somatostatin receptors couple to G_i to inhibit cAMP production, and also increase MAP kinase signalling. Several tumors have been shown to overexpress somatostatin receptors, and binding of somatostatin to these tumor cells stimulates or inhibits proliferation, depending on the receptor subtypes expressed (Olias *et al*., 2004). However, SST_3 appears to promote apoptosis, and expression of SST_3 was found to be lower in gastric cancer cells than in normal gastric mucosa, in proportion to susceptibility to apoptosis induced by somatostatin analogs (Sharma *et al*., 1996; Hu *et al*., 2004). In addition, SST_3 is expressed in smooth muscle cells and mediates gastrointestinal contractions. The cloned human SST_3-expressing cell line is made in the Chem-1 host, which supports high levels of recombinant SST_3 expression on the cell surface and contains high levels of the promiscuous G protein Gα15 to couple the receptor to the calcium signaling pathway. Thus, the cell line is an ideal tool for screening for antagonists of interactions between the SST_3 and its ligands.

USE RESTRICTIONS

Please see **Limited Use Label License Agreement** (Label License Agreement) for further details.

WARNINGS

For Research Use Only; Not for Use in Diagnostic Procedures
Not for Animal or Human Consumption

GMO

This product contains genetically modified organisms.
Este producto contiene organismos genéticamente modificados.
Questo prodotto contiene degli organismi geneticamente modificati.
Dieses Produkt enthält genetisch modifizierte Organismen.
Ce produit contient organismes génétiquement des modifiés.
Dit product bevat genetisch gewijzigde organismen.
Tämä tuote sisältää geneettisesti muutettuja organismeja.
Denna produkt innehåller genetiskt ändrade organismer.

Eurofins Pharma Bioanalytics Services US Inc.
6 Research Park Drive
St Charles MO 63304
USA
T | +1 844 522 7787
F | +1 636 362 7131
www.eurofins.com

APPLICATIONS

Calcium Flux Fluorescence Assay

APPLICATION DATA

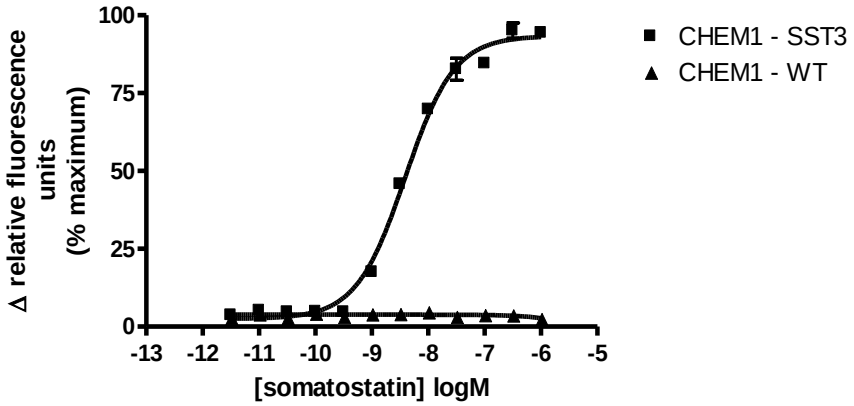

Figure 1. Representative data for activation of the SST_3 receptor stably expressed in Chem-1 cells induced by Somatostatin using a fluorescent calcium flux assay. SST_3–expressing Chem-1 cells were seeded at 50,000 cells per well into a 96-well plate, and the following day the cells were loaded with a fluorescent calcium indicator. Calcium flux in response to the indicated ligand with a final concentration of 0.5% DMSO was determined on a Molecular Devices FLIPR^{TETRA}® with ICCD camera. Maximal fluorescence signal obtained in this experiment was 8,000 RLU. Similarly parental cells (catalog #: HTSCHEM-1) were tested to determine the specificity of the resulting signal.

Table 1. EC_{50} value of SST_3-expressing Chem-1 cells.

LIGAND	ASSAY	POTENCY EC_{50} (nM)	REFERENCE
Somatostatin	Calcium Flux - Fluorescence	3.9	Eurofins Internal Data

* The cell line was tested and found to have equivalent EC_{50} and signal at 1, 3 and 6 weeks of continuous culture by calcium flux fluorescence.

CELL CULTURE

Table 2. Recommended Cell Culture Reagents (not provided)

Description	Component	Concentration	Supplier and Product Number
Basal Medium	DMEM high glucose Medium (4.5g/L)	-	Hyclone: SH30022
	Fetal Bovine Serum (FBS)	10%	Hyclone: SH30070.03
	Non-Essential Amino Acids (NEAA)	1X	Hyclone: SH30238.01
	HEPES	1X	EMD Millipore: TMS-003-C
Selection Medium	Basal Medium (see above)	-	
	Geneticin (G418)	250 µg/ml	Invivogen: ant-gn-5
Dissociation	Sterile PBS	-	Hyclone: SH30028.03
	0.25% Trypsin-EDTA	-	Hyclone: SH30042.01
CryoMedium	Basal Medium (see above)	40%	
	Fetal Bovine Serum (FBS)	50%	Hyclone: SH30070.03
	Dimethyl Sulfoxide (DMSO)	10%	Sigma: D2650

Cell Handling

1. Upon receipt, directly place cells in liquid nitrogen storage. Consistent cryopreservation is essential for culture integrity.
2. Prepare Basal Medium. Prepare 37ºC Water Bath. Thaw cells rapidly by removing from liquid nitrogen, and immediately immersing in a 37ºC water bath, until 90% thawed. Immediately sterilize the exterior of the vial with 70% ethanol.
3. Add vial contents to 15 mL Basal Medium in T75 Tissue Culture Treated Flask. Gently swirl flask and place in a humidified, tissue culture incubator, 37ºC, 5% CO_2.
4. 18-24 Hours Post–Thaw, all live cells should be attached. Viability of the cells is expected to be 60-90%, At this time, exchange Basal Medium with Selection Medium.
5. When cells are approximately 80% confluent, passage the cells. It is suggested that user expand culture to create >20 vial Master Cell Bank at low passage number. *Cells should be maintained at less than 80% confluency for optimal assay results.*
6. Cell Dissociation: Aspirate Culture Medium. Gently wash with 1x Volume PBS. Add 0.1x Volume Warm Trypsin-EDTA. Incubate 4 min, 37°C, until cells dislodge. *If cells do not round up, place in 37º C incubator for additional 2 min*. Neutralize Trypsin and collect cells in 1x Volume Basal Medium.
7. Seed Cells for expansion of culture. It is recommended that cell lines are passaged at least once before use in assays.

Table 3. Cell Culture Seeding Suggestions: *User should define based on research needs.*

Flask Size (cm^2)	Volume (mL)	Total Cell Number ($x10^6$)	Growth Period (hrs)
T75	15	5.0	24
T75	15	2.0	48
T75	15	0.45	72

ASSAY SETUP

Fluorescence

Table 4. Settings for FLIPR^{TETRA}® with ICCD camera option

Option	Setting
Read Mode	Fluorescence
Ex/Em	Ex470_495 / Em515_575
Camera Gain	2000
Gate Open	6 %
Exposure Time	0.53
Read Interval	1s
Dispense Volume	50 µl (25 µl for 384-well)
Dispense Height	95 µl (50 µl for 384-well)
Dispense Speed	50 µl/sec
Expel Volume	0 µl
Analysis	Subtract Bias Sample 1

Table 5. Assay Materials (Not provided)

Description	Supplier and Product Number
HBSS	Invitrogen: 14025
HEPES 1M Stock	EMD Millipore: TMS-003-C
Probenicid	Sigma: P8761
Quest Fluo-8™, AM	AAT Bioquest: 21080
Somatostatin ligand	Sigma: S9129
Non-Binding 96/384 well Plates (for ligand prep)	Corning: 3605/ 3574
Black (clear Bottom) cell assay plates	Corning: 3904/ 3712
Coelenterazine-h (250µg). Prepare to 10mM	Promega: S2011

Assay Protocol – Fluorescence

1. Dissociate Culture as Recommended. Collect in Basal Medium. Document Cell Count and Viability
2. Centrifuge the cell suspension at 190 x g for six min
3. Remove supernatant. Gently resuspend the cell pellet in Basal Medium. *It is suggested that end user optimize cell plating based on individual formats.* (Default: Resuspend in volume to achieve $5x10^5$cells/ml *(i.e, if collected 5e6 TC,* $^{5e6/}_{5e5/ml}$ *=10 mL volume)*
4. Seed cell suspension into black, clear bottom plate (100 µL/well for 96-well plate). *When seeding is complete, place the assay plate at room temperature for 30 min.*
5. Move assay plate to a humidified 37ºC 5% CO_2 incubator for 18-24 h.
6. Next day, prepare Assay buffer (HBSS, 20mM HEPES, 2.5 mM Probenicid, pH 7.4) and Loading buffer (Assay buffer with 5 mM Fluo8 Dye). *Note: Please prepare Fluo8 stock according to Manufacturer's Recommendations*
7. Remove medium from assay plate and wash 1X with Assay Buffer.
8. Add Loading buffer to assay plate (100 µL/well for 96-well plate). Incubate plate for 1.5 h at room temperature, protected from light.
9. Prepare ligands in assay buffer at 3x final concentration in non-binding plates. Use Buffer Only Control Wells for Background Subtraction.
10. Create protocol for ligand addition. Please refer to FLIPR^{TETRA}® settings provided in Table 2. Set time course for 180 s, with ligand addition at 10 s.
11. After the run is complete, apply subtract bias on sample 1. We recommend using Negative Control Correction with Buffer Only Wells. Export data to according to research needs. For most Calcium Flux analysis using Export of Max Signal to end of run is sufficient.

eurofins | Discovery Services

HOST CELL

Chem-1, an adherent cell line expressing the promiscuous G-protein, Gα15.

EXOGENOUS GENE EXPRESSION

Human SST_3 cDNA (Accession Number: NM_001051.2; see CODING SEQUENCE below) and promiscuous G protein are expressed in a bicistronic vector

CODING SEQUENCE

```
   1 - ATG GAC ATG CTT CAT CCA TCA TCG GTG TCC ACG ACC TCA GAA CCT GAG AAT GCC TCC TCG GCC TGG CCC CCA  - 72
   1 -  M   D   M   L   H   P   S   S   V   S   T   T   S   E   P   E   N   A   S   S   A   W   P   P  - 24

  73 - GAT GCC ACC CTG GGC AAC GTG TCG GCA GGC CCA AGC CCG GCA GGG CTG GCC GTC AGT GGC GTT CTG ATC CCC  - 144
  25 -  D   A   T   L   G   N   V   S   A   G   P   S   P   A   G   L   A   V   S   G   V   L   I   P  - 48

 145 - CTG GTC TAC CTG GTG GTG TGC GTG GTG GGC CTG CTG GGT AAC TCG CTG GTC ATC TAT GTG GTC CTG CGG CAC  - 216
  49 -  L   V   Y   L   V   V   C   V   V   G   L   L   G   N   S   L   V   I   Y   V   V   L   R   H  - 72

 217 - ACG GCC AGC CCT TCA GTC ACC AAC GTC TAC ATC CTC AAC CTG GCG CTG GCC GAC GAG CTC TTC ATG CTG GGG  - 288
  73 -  T   A   S   P   S   V   T   N   V   Y   I   L   N   L   A   L   A   D   E   L   F   M   L   G  - 96

 289 - CTG CCC TTC CTG GCC GCC CAG AAC GCC CTG TCC TAC TGG CCC TTC GGC TCC CTC ATG TGC CGC CTG GTC ATG  - 360
  97 -  L   P   F   L   A   A   Q   N   A   L   S   Y   W   P   F   G   S   L   M   C   R   L   V   M  - 120

 361 - GCG GTG GAT GGC ATC AAC CAG TTC ACC AGC ATA TTC TGC CTG ACT GTC ATG AGC GTG GAC CGC TAC CTG GCC  - 432
 121 -  A   V   D   G   I   N   Q   F   T   S   I   F   C   L   T   V   M   S   V   D   R   Y   L   A  - 144

 433 - GTG GTA CAT CCC ACC CGC TCA GCC CGC TGG CGC ACA GCT CCG GTG GCC CGC ACG GTC AGC GCG GCT GTG TGG  - 504
 145 -  V   V   H   P   T   R   S   A   R   W   R   T   A   P   V   A   R   T   V   S   A   A   V   W  - 168

 505 - GTG GCC TCA GCC GTG GTG GTG CTG CCC GTG GTG GTC TTC TCG GGA GTG CCC CGC GGC ATG AGC ACC TGC CAC  - 576
 169 -  V   A   S   A   V   V   V   L   P   V   V   V   F   S   G   V   P   R   G   M   S   T   C   H  - 192

 577 - ATG CAG TGG CCC GAG CCG GCG GCG GCC TGG CGA GCC GGC TTC ATC ATC TAC ACG GCC GCA CTG GGC TTC TTC  - 648
 193 -  M   Q   W   P   E   P   A   A   A   W   R   A   G   F   I   I   Y   T   A   A   L   G   F   F  - 216

 649 - GGG CCG CTG CTG GTC ATC TGC CTC TGC TAC CTG CTC ATC GTG GTG AAG GTG CGC TCA GCT GGG CGC CGG GTG  - 720
 217 -  G   P   L   L   V   I   C   L   C   Y   L   L   I   V   V   K   V   R   S   A   G   R   R   V  - 240

 721 - TGG GCA CCC TCG TGC CAG CGG CGG CGG CGC TCC GAA CGC AGG GTC ACG CGC ATG GTG GTG GCC GTG GTG GCA  - 792
 241 -  W   A   P   S   C   Q   R   R   R   R   S   E   R   R   V   T   R   M   V   V   A   V   V   A  - 264

 793 - CTC TTC GTG CTC TGC TGG ATG CCC TTC TAT GTG CTC AAC ATC GTC AAC GTG GTG TGC CCA CTG CCC GAG GAG  - 864
 265 -  L   F   V   L   C   W   M   P   F   Y   V   L   N   I   V   N   V   V   C   P   L   P   E   E  - 288

 865 - CCT GCC TTC TTT GGG CTC TAC TTC CTG GTG GTG GCG CTG CCC TAT GCC AAC AGC TGT GCC AAC CCC ATC CTT  - 936
 289 -  P   A   F   F   G   L   Y   F   L   V   V   A   L   P   Y   A   N   S   C   A   N   P   I   L  - 312

 937 - TAT GGC TTC CTC TCC TAC CGC TTC AAG CAG GGC TTC CGC AGG GTC CTG CTG CGG CCC TCC CGC CGT GTG CGC -1008
 313 -  Y   G   F   L   S   Y   R   F   K   Q   G   F   R   R   V   L   L   R   P   S   R   R   V   R  - 336

1009 - AGC CAG GAG CCC ACT GTG GGG CCC CCG GAG AAG ACT GAG GAG GAG GAT GAG GAG GAG GAG GAT GGG GAG GAG -1080
 337 -  S   Q   E   P   T   V   G   P   P   E   K   T   E   E   E   D   E   E   E   E   D   G   E   E  - 360

1081 - AGC AGG GAG GGG GGC AAG GGG AAG GAG ATG AAC GGC CGG GTC AGC CAG ATC ACG CAG CCT GGC ACC AGC GGG -1152
 361 -  S   R   E   G   G   K   G   K   E   M   N   G   R   V   S   Q   I   T   Q   P   G   T   S   G  - 384

1153 - CAG GAG CGG CCG CCC AGC AGA GTG GCC AGC AAG GAG CAG CAG CTC CTA CCC CAA GAG GCT TCC ACT GGG GAG -1224
 385 -  Q   E   R   P   P   S   R   V   A   S   K   E   Q   Q   L   L   P   Q   E   A   S   T   G   E  - 408

1225 - AAG TCC AGC ACG ATG CGC ATC AGC TAC CTG TGA
 409 -  K   S   S   T   M   R   I   S   Y   L  Stp
```

RELATED PRODUCTS

Product Number	Description
HTSCHEM-1	ChemiScreen™ Chem-1 Parental Cell Line (control cells)
HTS171M	ChemiScreen™ SST_3 Somatostatin Receptor Membrane Prep

REFERENCES

1. Hu C *et al.* (2004) The effect of somatostatin and SSTR3 on proliferation and apoptosis of gastric cancer cells. *Cancer Biol Ther.* 3(8): 726-730.
2. Olias G *et al.* (2004) Regulation and function of somatostatin receptors. *J. Neurochem.* 89: 1057-1091.
3. Sharma K *et al.* (1996) Subtype-selective induction of wild-type p53 and apoptosis, but not cell cycle arrest, by human somatostatin receptor 3. *Mol. Endocrinol.* 10: 1688-1696.

FOR RESEARCH USE ONLY; NOT FOR USE IN DIAGNOSTIC PROCEDURES. NOT FOR HUMAN OR ANIMAL CONSUMPTION

Limited Use Label License Agreement

In addition to the General Terms & Conditions of Sale for Products and Services section, this Product is subject to Limited Use Label License Agreement. Please go to https://www.eurofinsdiscoveryservices.com/cms/cms-content/misc/legal-disclaimer/ for more information.