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SZABO-SCANDIC HandelsgmbH

Quellenstraße 110, A-1100 Wien

T. +43(0)1 489 3961-0

F. +43(0)1 489 3961-7

mail@szabo-scandic.com

www.szabo-scandic.com

[linkedin.com/company/szaboscandic](https://www.linkedin.com/company/szaboscandic) 

Human Transmembrane Protease, Serine 2 (TMPRSS-2) Stable Cell Line

CATALOG NUMBER: CL-TMPRSS2-001

Introduction

The TMPRSS2 gene encodes a protein that belongs to the serine protease family. The encoded protein, Transmembrane Protease, Serine 2, contains a type II transmembrane domain, a receptor class A domain, a scavenger receptor cysteine-rich domain and a protease domain. Serine proteases are known to be involved in many physiological and pathological processes. It has been shown that TMPRSS-2 as an endothelial cell surface protein, is involved in the viral entry and spread of coronaviruses, including SARS-CoV-2 that causes COVID-19. It is a possible target for future antiviral drugs.

Description

This HEK293-TMPRSS-2 stable cell line expresses a recombinant human TMPRSS-2 (Transmembrane Protease, Serine 2) in addition to a recombinant human ACE2 (Angiotensin-Converting Enzyme 2).

Parental Cells

HEK293-ACE2 cells

Gene/Enzyme Introduced

1) Human ACE2 (EC 3.4.17.23)

Other name(s): ACE-2; ACE2; hACE2; angiotensin converting enzyme 2; angiotensin converting enzyme-2; Tmem27

2) Human TMPRSS-2 (NCBI protein database NP_005647.2)

Other name: TMPRSS2

Applications

- cell based high-throughput screening of human TMPRSS-2 antagonists
- SARS-CoV-2 entry study

Functional Tests

- This cell line has been verified by a TMPRSS-2 specific antibody and an ACE2 specific antibody staining.
- survival rate: more than 2.5 million/vial on the second day after thawing

Mycoplasma Contamination Test

This lot of cells have been tested and found to be free of mycoplasma contamination.

Content

- Stable ACE2-TMPRSS2 cells: 1 mL (2 x 10⁶ cells/mL in DMEM, 10% FBS, 10% DMSO)

Growth Properties

Adherent

Cell Culture Medium

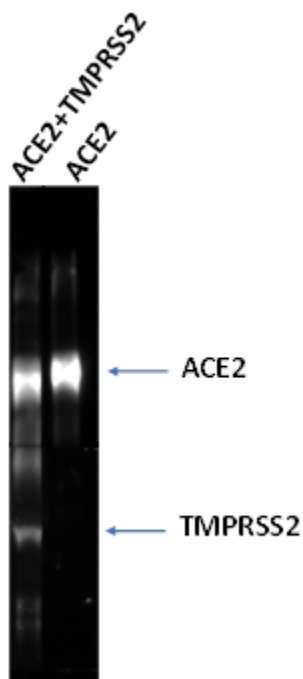
- Growth medium: 90%DMEM+10%FBS+1 ug/ml puromycin +250 ug/ml G418
- Freezing medium: 10% DMSO, 90% complete cell culture medium

Storage

Remove the frozen cells from the dry ice packaging and immediately place the cells at a temperature below -130°C, preferably in liquid nitrogen vapor, until ready for use.

Data Examples

A. Western Blot



B. Pseudoviral Particle “Infection” Assay

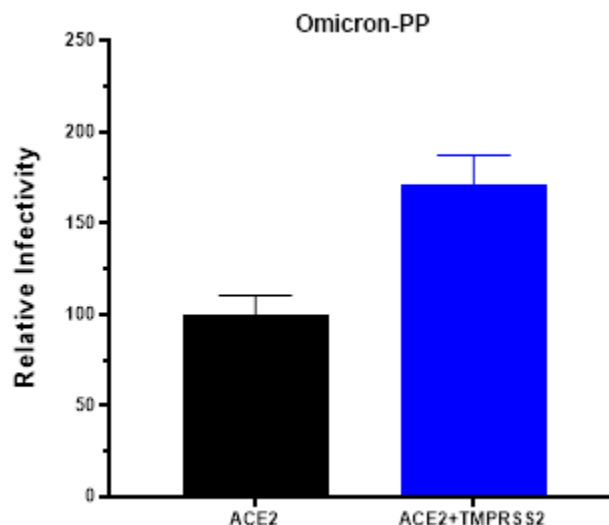


Figure A. Representative image of western blot with ACE2 and TMPRSS2 antibody.

- 1) Cell lysate from HEK293-ACE2-TMPRSS2 cells (“ACE2-TMPRSS2”, Catalog # CL-TMPRSS2-001);
- 2) Cell lysate from HEK293-ACE2 cells (“ACE2”, Catalog # [CL-ACE2-002](#)).

Figure B. SARS-CoV-2 Omicron Pseudoviral Particle “Infection” of ACE2 and ACE2-TMPRSS2 expressed cells.

7.5K of HEK293-ACE2 or HEK293-ACE2-TMPRSS2 cells were plated to a 384-well white clear plate coated with PDL. On the 2nd day, the cells were infected with 12.5 ml of SARS-CoV2-Omicron Pseudovirus Particles (“Omicron-PP”, Catalog # [SCV2-PsV-Omicron](#)) and cultured for additional 42 hrs. The cells were lysed and the firefly luciferase activity was measured with eEnzyme’s luciferase assay kit ([CA-L165](#)). The reading was normalized by the cell number measured with eEnzyme’s cell growth assay kit ([CA-A115](#)).

Restriction

This cell line is not allowed to be transferred to other laboratory or other company. For purchasing this cell line, please contact eEnzyme LLC at info@eEnzyme.com, Telephone: +1 (240) 683 5851, FAX: +1 (240) 683 5852