SANTA CRUZ BIOTECHNOLOGY, INC.

SSEA-1 (480): sc-21702

BACKGROUND

Embryonic stem cells have the ability to remain undifferentiated and proliferate indefinitely *in vitro,* while maintaining the potential to differentiate into derivatives of all three embryonic germ layers. Undifferentiated human embryonal carcinoma (EC) cells are the stem cells of teratocarcinomas and are characterized by the expression of stage specific embryonic antigens SSEA-1 and SSEA-3, TRA-2-39, TRA-2-54 and the high molecular weight glycoproteins TRA-1-60 and TRA-1-81. In addition, SSEA-1, SSEA-3 and SSEA-4 are markers that characterize embryonic stem (ES) and embryonic germ (EG) cells. Specifically, undifferentiated cells from the human ES cell line H7 express SSEA-3, SSEA-4, TRA-1-60 and TRA-1-81, but not SSEA-1. Interferon induces expression of SSEA-3 and SSEA-4 in EC cells without inhibiting their growth or inducing their differentiation.

CHROMOSOMAL LOCATION

Genetic locus: FUT4 (human) mapping to 11q21; Fut4 (mouse) mapping to 9 A2.

SOURCE

SSEA-1 (480) is a mouse monoclonal antibody raised against X-irradiated F9 teratocarcinoma stem cells.

PRODUCT

Each vial contains 200 µg IgM kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

SSEA-1 (480) is available conjugated to agarose (sc-21702 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-21702 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; and to either phycoerythrin (sc-21702 PE), fluorescein (sc-21702 FITC) or Alexa Fluor® 488 (sc-21702 AF488) or Alexa Fluor® 647 (sc-21702 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM.

In addition, SSEA-1 (480) is available conjugated to Alexa Fluor® 405 (sc-21702 AF405, 200 µg/ml), 100 tests in 2 ml, for IF, IHC(P) and FCM.

Alexa Fluor® is a trademark of Molecular Probes, Inc., Oregon, USA

APPLICATIONS

SSEA-1 (480) is recommended for detection of SSEA-1 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and flow cytometry (1 µg per 1 x 10^6 cells).

Molecular Weight of SSEA-1: 220 kDa.

Positive Controls: human liver extract: sc-363766 or mouse kidney extract: sc-2255.

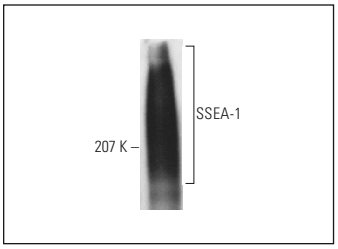
STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

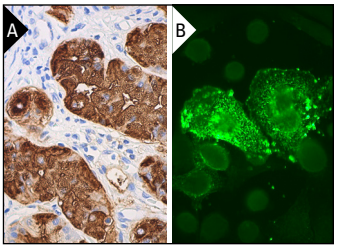
RESEARCH USE

For research use only, not for use in diagnostic procedures.

DATA



SSEA-1 (480): sc-21702. Western blot analysis of SSEA-1 expression mouse kidney tissue extract.



SSEA-1 (480) HRP: sc-21702 HRP. Direct immunoperoxidase staining of formalin fixed, paraffin-embedded human upper stomach tissue showing cytoplasmic and membrane staining of glandular cells (**A**). SSEA-1 (480) Alexa Fluor® 488: sc-21702 AF488. Direct immunofluorescence staining of formalin-fixed SW480 cells showing membrane localization in a subset of cells. Blocked with UltraCruz® Blocking Reagent: sc-516214 (**B**).

SELECT PRODUCT CITATIONS

1. Ward, C.M., et al. 2003. The 5T4 oncofoetal antigen is an early differentiation marker of mouse ES cells and its absence is a useful means to assess pluripotency. J. Cell Sci. 116: 4533-4542.
2. Wei, W., et al. 2016. Requirement of IP3 receptor 3 (IP3R3) in nitric oxide induced cardiomyocyte differentiation of mouse embryonic stem cells. Exp. Cell Res. 346: 9-16.
3. Yoshioka, N. and Dowdy, S.F. 2017. Enhanced generation of iPSCs from older adult human cells by a synthetic five-factor self-replicative RNA. PLoS ONE 12: e0182018.
4. Ye, B., et al. 2018. Klf4 glutamylation is required for cell reprogramming and early embryonic development in mice. Nat. Commun. 9: 1261.
5. Velychko, S., et al. 2019. Fusion of reprogramming factors alters the trajectory of somatic lineage conversion. Cell Rep. 27: 30-39.e4.
6. Watanabe, T., et al. 2020. SSEA-1-positive fibronectin is secreted by cells deviated from the undifferentiated state of human induced pluripotent stem cells. Biochem. Biophys. Res. Commun. 529: 575-581.
7. Le Rolle, M., et al. 2021. Arrest of WNT/β-catenin signaling enables the transition from pluripotent to differentiated germ cells in mouse ovaries. Proc. Natl. Acad. Sci. USA 118: e2023376118.
8. Ichikawa, K., et al. 2022. Prediction of sex-determination mechanisms in avian primordial germ cells using RNA-seq analysis. Sci. Rep. 12: 13528.
9. Ghazimoradi, M.H., et al. 2023. Reprogramming of fibroblast cells to totipotent state by DNA demethylation. Sci. Rep. 13: 1154.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.