SANTA CRUZ BIOTECHNOLOGY, INC.

TRA-1-81 (TRA-1-80): sc-21706

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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, the high molecular weight glycoproteins TRA-1-60 and TRA-1-81, as well as TRA-2-39 and TRA-2-54. Monoclonal antibodies TRA-2-49 and TRA-2-54 also recognize the liver isozyme of alkaline phosphatase expressed by human EC cells. TRA-1-60 antigen was originally identified as a teratocarcinoma mucin-like antigen expressed on the surface of EC progenitor cells. TRA-1-60 is also characterized as a tumor marker for embryonal carcinoma positive NSTGCT (nonseminomatous testicular germ cell tumors) and is coexpressed with TRA-1-81 and the SSEAs on the membrane of a considerable number of stem cells.

REFERENCES

1. Andrews, P.W., et al. 1987. Human embryonal carcinoma cells and their differentiation in culture. Int. J. Androl. 10: 95-104.
2. Marrink, J., et al. 1991. TRA-1-60: a new serum marker in patients with germ-cell tumors. Int. J. Cancer 49: 368-372.

CHROMOSOMAL LOCATION

Genetic locus: PODXL (human) mapping to 7q32.3.

SOURCE

TRA-1-81 (TRA-1-80) is a mouse monoclonal antibody raised against 2102Ep human embryonal carcinoma 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.

TRA-1-81 (TRA-1-80) is available conjugated to Alexa Fluor® 647 (sc-21706 AF647), 200 µg/ml, for IF, IHC(P) and FCM.

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

APPLICATIONS

TRA-1-81 (TRA-1-80) is recommended for detection of TRA-1-81 of 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) and flow cytometry (1 µg per 1 x 10^6 cells).

Positive Controls: NTERA-2 cl.D1 whole cell lysate: sc-364181, ECV304 cell lysate: sc-2269 or Raji whole cell lysate: sc-364236.

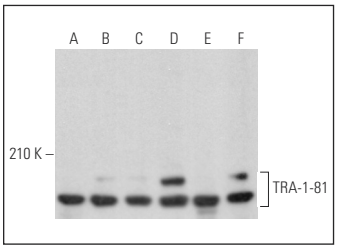
STORAGE

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

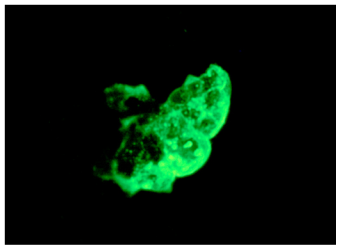
RESEARCH USE

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

DATA



TRA-1-81 (TRA-1-80): sc-21706. Western blot analysis of TRA-1-81 expression in ECV304 (**A**), Raji (**B**), MIA PaCa-2 (**C**), HeLa (**D**), Jurkat (**E**) and NTERA-2 cl.D1 (**F**) whole cell lysates.



TRA-1-81 (TRA-1-80): sc-21706. Immunofluorescence staining of methanol-fixed NTERA-2 cl.D1 cells showing membrane localization.

SELECT PRODUCT CITATIONS

1. Inzunza, J., et al. 2004. Comparative genomic hybridization and karyotyping of human embryonic stem cells reveals the occurrence of an isodicentric X chromosome after long-term cultivation. Mol. Hum. Reprod. 10: 461-466.
2. Conrad, S., et al. 2008. Generation of pluripotent stem cells from adult human testis. Nature 456: 344-349.
3. Fischer, Y., et al. 2010. NANOG reporter cell lines generated by gene targeting in human embryonic stem cells. PLoS ONE 5: e12533.
4. Serra, M., et al. 2011. Microencapsulation technology: a powerful tool for integrating expansion and cryopreservation of human embryonic stem cells. PLoS ONE 6: e23212.
5. Shalom-Feuerstein, R., et al. 2012. Impaired epithelial differentiation of induced pluripotent stem cells from ectodermal dysplasia-related patients is rescued by the small compound APR-246/PRIMA-1MET. Proc. Natl. Acad. Sci. USA 110: 2152-2156.
6. Liao, X., et al. 2013. Matched miRNA and mRNA signatures from an hESC-based *in vitro* model of pancreatic differentiation reveal novel regulatory interactions. J. Cell Sci. 126: 3848-3861.
7. Matsumoto, S., et al. 2015. A cytotoxic antibody recognizing lacto-N-fucopentaose I (LNFP I) on human induced pluripotent stem (hiPS) cells. J. Biol. Chem. 290: 20071-20085.
8. Questa, M., et al. 2016. Generation of iPSC line iPSC-FH2.1 in hypoxic conditions from human foreskin fibroblasts. Stem Cell Res. 16: 300-303.
9. Bharathan, S.P., et al. 2017. Systematic evaluation of markers used for the identification of human induced pluripotent stem cells. Biol. Open 6: 100-108.

PROTOCOLS

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