

SSEA-3 (3H420): sc-73066

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.

REFERENCES

1. Andrews, P.W., Goodfellow, P.N., Shevinsky, L.H., Bronson, D.L. and Knowles, B.B. 1982. Cell-surface antigens of a clonal human embryonal carcinoma cell line: morphological and antigenic differentiation in culture. *Int. J. Cancer* 29: 523-531.
2. Damjanov, I., Fox, N., Knowles, B.B., Solter, D., Lange, P.H. and Fraley, E.E. 1982. Immunohistochemical localization of murine stage-specific embryonic antigens in human testicular germ cell tumors. *Am. J. Pathol.* 108: 225-230.
3. Kannagi, R., Cochran, N.A., Ishigami, F., Hakomori, S., Andrews, P.W., Knowles, B.B. and Solter, D. 1983. Stage-specific embryonic antigens (SSEA-3 and -4) are epitopes of a unique globo-series ganglioside isolated from human teratocarcinoma cells. *EMBO J.* 2: 2355-2361.
4. Andrews, P.W., Fenderson, B. and Hakomori, S. 1987. Human embryonal carcinoma cells and their differentiation in culture. *Int. J. Androl.* 10: 95-104.
5. Thomson, J.A., Kalishman, J., Golos, T.G., Durning, M., Harris, C.P., Becker, R.A. and Hearn, J.P. 1995. Isolation of a primate embryonic stem cell line. *Proc. Natl. Acad. Sci. USA* 92: 7844-7848.
6. Thomson, J.A., Kalishman, J., Golos, T.G., Durning, M., Harris, C.P. and Hearn, J.P. 1996. Pluripotent cell lines derived from common marmoset (*Callithrix jacchus*) blastocysts. *Biol. Reprod.* 55: 254-259.
7. Shablott, M.J., Axelman, J., Wang, S., Bugg, E.M., Littlefield, J.W., Donovan, P.J., Blumenthal, P.D., Huggins, G.R. and Gearhart, J.D. 1998. Derivation of pluripotent stem cells from cultured human primordial germ cells. *Proc. Natl. Acad. Sci. USA* 95: 13726-13731.
8. Draper, J.S., Pigott, C., Thomson, J.A. and Andrews, P.W. 2002. Surface antigens of human embryonic stem cells: changes upon differentiation in culture. *J. Anat.* 200: 249-258.
9. Laursen, S.B., Mollgard, K., Olesen, C., Oliveri, R.S., Brochner, C.B., Byskov, A.G., Andersen, A.N., Hoyer, P.E., Tommerup, N., Yding Andersen, C. 2007. Regional differences in expression of specific markers for human embryonic stem cells. *Reprod. Biomed. Online* 15: 89-98.

RESEARCH USE

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

SOURCE

SSEA-3 (3H420) is a rat monoclonal antibody raised against 4-8 cell stage mouse embryos.

PRODUCT

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

APPLICATIONS

SSEA-3 (3H420) is recommended for detection of SSEA-3 of mouse, rat and human origin by immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and indirect flow cytometry (1 µg per 1 x 10⁶ cells).

SELECT PRODUCT CITATIONS

1. Evron, A., Goldman, S. and Shalev E. 2011. Human amniotic epithelial cells cultured in substitute serum medium maintain their stem cell characteristics for up to four passages. *Int. J. Stem Cells* 4: 123-32.
2. Liu, J., Brzeczynska, J., Samuel, K., Black, J., Palakkan, A., Anderson, R.A., Gallagher, R. and Ross, J.A. 2015. Efficient episomal reprogramming of blood mononuclear cells and differentiation to hepatocytes with functional drug metabolism. *Exp. Cell Res.* 338: 203-213.

STORAGE

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

PROTOCOLS

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



See **SSEA-3 (631): sc-21703** for SSEA-3 antibody conjugates, including AC, HRP, FITC, PE, Alexa Fluor[®] 488 and Alexa Fluor[®] 647.