SANTA CRUZ BIOTECHNOLOGY, INC.

Collagen Type IV: sc-29010

BACKGROUND

The extensive family of COL gene products (collagens) is composed of several chain types, including fibril-forming interstitial collagens (types I, II, III and V) and basement membrane collagens (type IV), each type containing multiple isoforms. Collagens are fibrous, extracellular matrix proteins with high tensile strength and are the major components of connective tissue, such as tendons and cartilage. All collagens contain a triple helix domain and frequently show lateral self-association in order to form complex connective tissues. Several collagens also play a role in cell adhesion, important for maintaining normal tissue architecture and function.

REFERENCES

1. McCarthy, J.B., et al. 1996. Cell adhesion to collagenous matrices. Biopolymers 40: 371-381.
2. Bateman, J.F., et al. 1996. In Comper, W.D., ed. Extracellular Matrix. Amsterdam: Harwood. 2: 22-67.
3. Engel, J. 1997. Versatile collagens in invertebrates. Science 277: 1785-1786.

PRODUCT

Collagen Type IV is purified from Engelbreth-Holm-Swarm (EHS) lathrytic mouse tumor (≥ 90%) by SDS PAGE; supplied as 1 mg (measured by pyrochemiluminescence), frozen, in 0.05M HCl.

Collagen Type IV is generally used as a thin coating in the concentration range of 1-10 µg/cm^2 of growth surface. Higher concentrations may allow for longer term attachment. Recommended coating protocols are provided as guidelines only; each laboratory should empirically determine the optimal conditions for their unique applications.

Collage Type IV has been tested for its ability to promote attachment and spreading of NG-108 (mouse neuroblastoma/rat glioma) cells. The contents of this vial have been tested and found negative for the presence of bacteria, fungi and mycoplasma.

CALIFORNIA PROPOSITION 65 NOTICE

This product contains chloroform, a chemical known to the state of California to cause cancer.

STORAGE AND RECONSTITUTION

Stable for a minimum of three months from the date of shipment when stored at -70° C.

To use, thaw product VERY SLOWLY. Place vial in ice container and place container at 4° C. Thawing may take up to 48 hours. Once thawed, vigorously vortex vial for 10-15 seconds. If removal of insoluble material is desired, centrifuge aseptically.

Use immediately or dispense into appropriate aliquots and store at -70° C. Solubilized product should be used within one month. **DO NOT STORE IN FROST-FREE FREEZER. AVOID REPEATED FREEZE/THAW CYCLES**.

RECOMMENDED COATING PROTOCOL

- Dilute material to the desired concentration using 0.05 M HCl. The final solution should be sufficiently dilute so that the volume added to the coating surface will coat it evenly (e.g. for a final coating concentration of 10 µg/cm2, dilute material to 100 µg/ml and add 1 ml/35 mm dish, 3 ml/60 mm dish, etc.).
- Add appropriate amount of diluted material to culture surface.
- Incubate at room temperature for one hour.
- Aspirate remaining material.
- Rinse plates well to remove acid, using PBS or dH_2O.
- Plates may be used immediately or may be stored at 4° C, damp or air dried, if sterility is maintained.

SELECT PRODUCT CITATIONS

1. Xu, J., et al. 2009. Use of senescence-accelerated mouse model in bleomycin-induced lung injury suggests that bone marrow-derived cells can alter the outcome of lung injury in aged mice. J. Gerontol. A Biol. Sci. Med. Sci. 64: 731-739.
2. Coulson-Thomas, V.J., et al. 2010. Fibroblast and prostate tumor cell cross-talk: fibroblast differentiation, TGFβ, and extracellular matrix down-regulation. Exp. Cell Res. 316: 3207-3226.
3. Coulson-Thomas, V.J., et al. 2011. Colorectal cancer desmoplastic reaction up-regulates collagen synthesis and restricts cancer cell invasion. Cell Tissue Res. 346: 223-236.
4. Li, D., et al. 2013. Curcumin ameliorates podocytic adhesive capacity damage under mechanical stress by inhibiting miR-124 expression. Kidney Blood Press. Res. 38: 61-71.
5. Kumar, A., et al. 2014. Conformational changes and translocation of tissue-transglutaminase to the plasma membranes: role in cancer cell migration. BMC Cancer 14: 256.
6. Ruisu, K., et al. 2017. RIC8A is essential for the organisation of Actin cytoskeleton and cell-matrix interaction. Exp. Cell Res. 357: 181-191.
7. Schipper, K., et al. 2019. Rebalancing of actomyosin contractility enables mammary tumor formation upon loss of E-cadherin. Nat. Commun. 10: 3800.
8. Howe, E.N., et al. 2020. Rab11b-mediated integrin recycling promotes brain metastatic adaptation and outgrowth. Nat. Commun. 11: 3017.
9. Chen, X., et al. 2020. The nephroprotective effect of TNF receptor-associated factor 6 (TRAF6) blockade on LPS-induced acute renal injury through the inhibition if inflammation and oxidative stress. Med. Sci. Monit. 26: e919698.
10. Hakanpää, L., et al. 2023. Reticular adhesions are assembled at flat clathrin lattices and opposed by active Integrin α5β1. J. Cell Biol. 222: e202303107.

RESEARCH USE

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