

Collagen-based Cell Contraction Assay Assay Kit

Collagen-based Cell Contraction Assay

CATALOG #
AAA11407

PRODUCT SYNONYMS

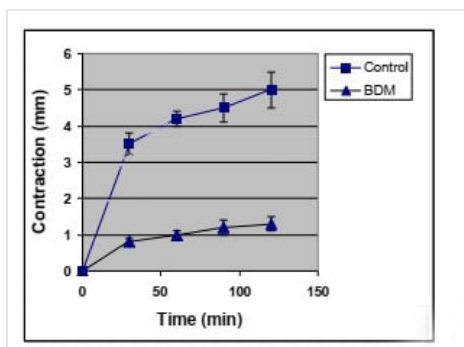
Collagen-based Cell Contraction Assay; Collagen-based Cell Contraction Assay assay kit

PRODUCT SPECIFICATIONS

Preparation and Storage

Store all components at 4 degree C until their expiration dates.

IMAGES



Standard Curve (Sample)

ADDITIONAL INFORMATION

Related Product Information for Collagen-based Cell Contraction Assay assay kit

Background: Wound healing comprises of three processes: epithelialization, connective tissue deposition, and contraction. The contraction process is believed to be mediated by specialized fibroblasts called myofibroblasts. Three-dimensional collagen gels have been widely used in fibroblast contraction studies. There are several different culture models to study the ability of fibroblasts to reorganize and contract collagen matrices in vitro. In the floating contraction model, a freshly polymerized collagen matrix containing cells is released from the culture dish and allowed to float in culture medium, and contraction occurs in the absence of external mechanical load and without appearance of stress fibers in the cells. In the attached model, a polymerized collagen matrix containing cells remains attached to the culture dish during contraction. Mechanical tension develops during contraction, and cellular stress fibers assemble. The two-step model combines an initial period of attached matrix contraction leading to mechanical loading, followed by release of the matrices, resulting in mechanical unloading and further contraction as mechanical stress dissipates. The signaling mechanisms used by fibroblasts to regulate collagen matrix contraction depend on whether the cells are mechanically loaded or unloaded at the time that contraction is initiated as well as on the growth factor used to initiate contraction. For instance, stimulation of fibroblasts by lysophosphatidic acid (LPA) but not by platelet-derived growth factor (PDGF) causes robust force generation in restrained matrices, whereas LPA and PDGF stimulate floating matrix contraction equally well. 3D collagen matrix has also been used in the studies of integrin signaling, cell apoptosis and cytoskeleton reorganization. Since three-dimensional matrix adhesions differ in structure, localization, and function from two-dimensional adhesions; and therefore, three-dimensional cell-matrix interactions may be more relevant biologically. Collagen-based Contraction Assay Kit provides a simple system to assess cell contractivity in vitro and screen cell contraction mediators. Each kit provides sufficient quantities to perform up to 24 assays in a 24-well plate. The kit can also be used for culturing cells in a 3D collagen matrix.

Product Categories/Family for Collagen-based Cell Contraction Assay assay kit	Cell Based Assays; Cell Contraction
References	1. Martin, P. (1997) Science 276, 75-81 2. Bell, E., Ivarsson, B., and Merrill, C. (1979) Proc. Natl. Acad. Sci. U. S. A. 76, 1274-1278 3. Stupak, D., and Harris, A. K. (1982) Dev. Biol. 90, 383-398 4. Mochitate, K., Pawelek, P., and Grinnell, F. (1991) Exp. Cell Res. 193, 198-207 5. Tian, B., Lessan, K., Kahm, J., Kleidon, J., and Henke, C. (2002) J. Biol. Chem. 277, 24667-24675 1. Woeller, C. F. et al. (2015). Salinomycin and other polyether ionophores are a new class of antiscarring agent. J Biol Chem. 290:3563-3575. 2. Luo, Y. et al. (2015). Magnitude-dependent proliferation and contractility modulation of human bladder smooth muscle cells under physiological stretch. World J Urol. doi:10.1007/s00345-015-1509-4. 3. Nie, L. et al. (2014). Endothelial-mesenchymal transition in normal human esophageal endothelial cells cocultured with esophageal adenocarcinoma cells: role of IL-1beta and TGF-beta2. Am J Physiol Cell Physiol. 307:C859-C877. 4. Kotio, K.U. et al. (2011). Implication of microRNAs in Atrial Natriuretic Peptide and Nitric Oxide Signaling in Vascular Smooth Muscle Cells. Am J Physiol Cell Physiol. 301:C929-C937. 5. Schell, C. et al. (2010). 15-deoxy-delta12-14-prostaglandin-J2 induces hypertrophy and loss of contractility in human testicular peritubular cells: implications for human male fertility. Endocrinology 151:1257-1268.

For Research Use Only. Not for use in diagnostic or therapeutic procedures. Small volumes of product may become entrapped in the seal of the vial during shipment and storage; if necessary, briefly centrifuge the vial on a tabletop centrifuge to dislodge any liquid in the cap.

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Online datasheet: <https://stage.aaabiotech.com/assay-kits/collagen-based-cell-contraction-assay/11407>