Circular Foam Tissue Train® Culture Plates

Product Information Sheet
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Circular foam Tissue Train® culture plates are 35 mm 6-well plates with 1) flexible silicone elastomer well bottoms and 2) foam rings for creating circular three dimensional cell-seeded gel constructs (Fig. 1). The foam rings come untreated or with a covalently bonded protein to improve cell-gel attachment (Table 1). Circular Foam Tissue Train® culture plates can be used with the Flexcell® Tension System to apply equibiaxial tensile strain to these gel constructs. For more information, see the Circular Foam Tissue Train® culture plate product webpage at http://www.flexcellint.com/CircTissueTrainPlate.htm.

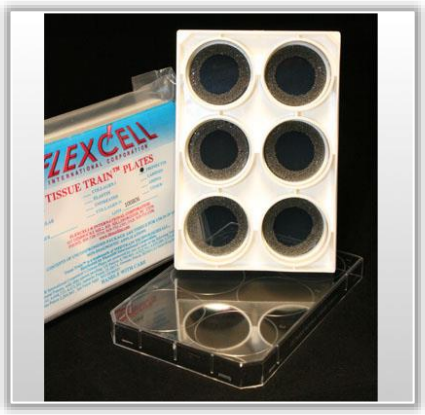

Figure 1. *A Circular Foam Tissue Train® culture plate with silicone elastomer well bottoms and foam rings for three-dimensional cell culture.*

PREPARATION OF CELLS IN 3D CIRCULAR GELS IN A TISSUE TRAIN® CULTURE PLATE

1. Prepare cells according to your established protocol for primary cultures or continuous cell lines in the medium of choice.
2. Release cells from their substrates with 0.05% trypsin, trypsin-EDTA, 0.05% bacterial collagenase, or other means.
3. Add serum containing media to the cells to neutralize the trypsin or collagenase.
4. Count cells and determine the number of cells needed, approximately 1-2 million cells in 1 ml Collagel® or Thermacol® collagen gel for each well of a 6-well Circular Foam Tissue Train® culture plate. *NOTE: Cell seeding density in a 3D gel will vary depending on cell type. We recommend testing cell seeding densities to determine the best cell number for your application and cell type.*
5. Wash cells 2x with medium to remove trypsin or collagenase.
6. Cells may be reconstituted in one volume of a hydrogel. The objective is to achieve an overall gel-MEM concentration of 1X. Before adding cells, the matrix protein gel solution should be neutralized to pH 7.0 using 1 M sodium hydroxide. The suggested formula for the Collagel® or Thermacol® 3D hydrogel is as follows: 70% by volume Collagel® or Thermacol®; 20% by volume of 5X MEM to yield an overall 1X concentration by total volume; 10% fetal calf serum; and cells.
7. Pipette the cell and Collagel® or Thermacol® gel into the space in the center of the foam anchor and around the inner perimeter of the annulus anchor. Use the pipette tip to compress the edge of the foam so that the cell and gel suspension is drawn into the foam. This step ensures that the gel and cells will integrate with the structure of the foam and form a mechanical bond to support the bioartificial tissue disk during mechanical loading.
8. Place the culture plates in a 37 °C incubator and allow the solution to polymerize, approximately 2 hours.
9. After the gel has set, add 3 ml of serum-containing media to each well.
10. Culture constructs according to the laboratories established protocol.

ORDERING INFORMATION

Circular Foam Tissue Train® culture plates are sold individually or by the case of 40 (Cat. No. TTCF-5001). Each plate is sterile and individually packaged in a sealed bag. See Table 1 for catalog numbers and corresponding protein coatings. Flexcell® culture plates have a shelf life of 1 year when stored at room temperature or 4 °C in the dark or out of direct light.

Table 1. *Circular Foam Tissue Train® culture plate catalog numbers and corresponding protein coating.*

Catalog Number	Coating*
TTCF-5001U	Untreated
TTCF-5001A	Amino
TTCF-5001C	Collagen I
TTCF-5001C(IV)	Collagen IV
TTCF-5001E	Elastin
TTCF-5001L	Laminin (YIGSR)
TTCF-5001P	Pronectin (RGD)

**For more information on these coatings, see* Tech Report 106: Matrix Bonded Growth Surfaces. Growing Cells in a More Natural Matrix Environment: *http://www.flexcellint.com/documents/106_MatrixBondedSurfacesTech.pdf.*

Flexcell® International Corporation • 2730 Tucker Street, Suite 200 • Burlington, NC 27215
800-728-3714 • (919) 732-1591 • FAX: (919) 732-5196 • www.flexcellint.com