# Directions for Use
# CytoForm®-100

3D PRINTED CALCIUM PHOSPHATE SCAFFOLDS, 6 SAMPLES IN A 12 WELL PLATE

Catalog Number **#5233-6EA**

**Product Description**

CytoForm®-100 consists of six (6) 3D printed calcium phosphate scaffolds in a 12-well plate.

The scaffolds consist of synthetic calcium phosphates, mainly alpha-tricalcium phosphate and nanocrystalline, calcium deficient hydroxyapatite. These scaffolds provide interconnected porosity (for vascularization), high bioactivity, easy handling, workability and high mechanical stability. These features make the substrates ideal for cell culture in bone and hard tissue regeneration.

The CytoForm®-100 scaffolds are sterilized by gamma irradiation and are ready to use with no pre-treatment necessary. Each layer is rotated by 45° for higher cell seeding efficiency.

CytoForm®-100 is chemically stable in neutral or alkaline pH and has high compressive/mechanical strength.

Scaffolds can be seeded directly with cells. Cells can also be suspended in a pre-hydrogel material (such as Type I collagen).

**Characterization and Testing**

The 3D printed calcium phosphate scaffolds have the following characteristics as shown in Table 1.

Table 1:

| Test | Specifications |
|---|---|
| Compressive Strength | ≥ 5 MPa |
| Sterility | Gamma-Sterilized |
| Diameter | 20 mm |
| Height | 5 mm |
| Number of Layers | 20 |
| Strand Diameter | ~330 um |
| Spacing | ~720 um |
| Strand Gap | ~390 um |
| Design Porosity | 80% |
| Scaffolds/Plate | 6 scaffolds |

**Storage/Stability:**

The product ships and is stored at room temperature.

**Cell Seeding Instructions**

1. Fill each well containing a scaffold with 3.5 mL of cell culture medium (approximately half the well volume) one day prior to seeding to wet the scaffold. Incubate at 37°C.

2. After incubation, aspirate off the cell culture medium.

3. Add cells the next day by dispensing on top of the scaffold and allow cells to attach for 30-60 minutes.

4.Fill the well with cell culture medium until the scaffold is completely covered.

Note: The type of medium used and exact cell numbers depend on the cell type. As a reference, we recommend ~5.0 x $10^4$ to 1.0 x $10^5$ human bone marrow stromal cells per scaffold.

**Cell Seeding Instructions Using Collagen Hydrogel**

1. Fill each well containing a scaffold with 3.5 mL of cell culture medium (approximately half the well volume) one day prior to seeding to wet the scaffold. Incubate at 37°C.

2. After incubation, aspirate off the cell culture medium.

3. Add cells to a neutralized collagen solution (such as PureCol® EZ Gel).

Note: The type of medium used and exact cell numbers depend on the cell type. As a reference, we recommend ~5.0 x $10^4$ to 1.0 x $10^5$ human bone marrow stromal cells per scaffold.

4. Slowly dispense the collagen/cell solution over the scaffold and allow the solution to fully permeate throughout the scaffold.

 

5. Allow collagen to polymerize within the scaffold for 60-90 minutes at 37°C.

6. Fill the well with cell culture medium until the scaffold is completely covered.

 