

DyNAtrix®

Ready-to-Use Kit

For Research Use Only. Not for use in human or animal therapeutic or diagnostic procedures.

Product Description

DyNAtrix is a fully synthetic, xeno-free cell culture matrix that enables precise adjustment of the mechanical cellular microenvironment. Due to its programmability and xeno-free composition, it allows highly reproducible cell culture studies under defined biochemical and mechanical conditions. The *Ready-to-Use Kit* allows a simple mix-and-go methodology for 3D cell culture.

Materials

Materials included in the package*

B+	Backbone polymer +RGD	1200 µL
X	Crosslinker	400 µL

*all components are dissolved in 1x DMEM.

Additional equipment and materials required

- **Culture dishes:** 6-well plates or 3.5 mm dishes for cell culture.
- **Microcentrifuge tubes:** Eppendorf tubes or similar.
- **ibidi inserts** (recommended for small culture volumes): micro-inserts 4 well for self-insertion (ibidi GmbH, Cat. No. 80409)

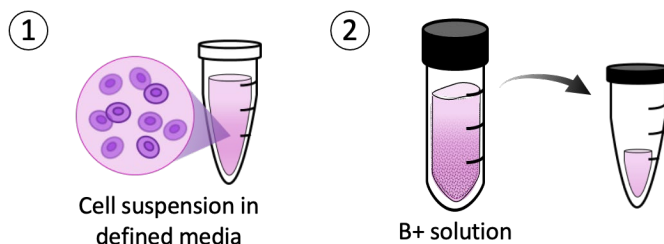
Protocol

General remarks

- The following protocol describes a standard cell culture experiment. Details of the protocol may be adapted to change parameters like cell density or total culture volume.
- DyNAtrix is designed for use in fully defined media. Avoid the use of serum or conditioned media, as this can lead to irreproducible results and matrix degradation.

Preparations

1. Prepare a cell suspension at a density of 4×10^6 cells/mL in serum-free medium.
2. Add **15 µL** of **B+** into a sterile microcentrifuge tube for each insert to be prepared.
3. Place the ibidi inserts into 6-well plates or 3.5 mm dishes.



Cell embedding

Following this protocol will produce gels with a stiffness of approximately 100 Pa.

1. Combine Cells with Backbone Polymer Solution

In an ice bath, mix **5 μL** of the prepared cell suspension (4×10^6 cells/mL) with **15 μL** of the mixture obtained in Step 1.

Note: Pipette up and down approximately **30 times** to ensure thorough mixing.

2. Add Crosslinker

In an ice bath, add **5 μL** of **X solution** to the 20 μL cell suspension–polymer mixture.

Note: Mix thoroughly by pipetting up and down approximately **30 times**.

3. Dispense Gel into Inserts

Immediately inject **5 μL** of the mixture into each microwell, ensuring the gel surface is flat and uniform.

Note: Examine gel homogeneity under a microscope. Cells should be evenly distributed throughout the gel. If uneven distribution is observed, increase pipetting during the mixing steps.

4. Polymerization

Incubate at **37 $^{\circ}\text{C}$** , **5% CO_2** for **60 minutes** to allow complete gelation.

5. Medium Overlay

Carefully overlay the entire insert with culture medium.

Note: Avoid introducing air bubbles between the gel surface and the medium.

6. Culture

Continue incubation at **37 $^{\circ}\text{C}$** , **5% CO_2** for the desired experimental duration.

