

Innovative 3D cell culture matrix with tunable properties

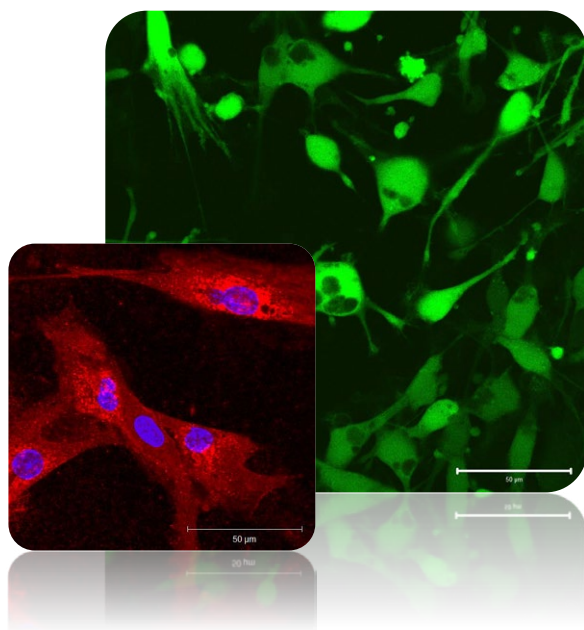
Reference No: B79074

CHALLENGE

3D cell culture enables cells to grow in three dimensions, thus mimicking the physiological cellular environment more precisely than the commonly used 2D cell culture systems. Especially in research fields like neurosciences or tumor biology, 3D cell culture has become state of the art for many applications. However, conventional 3D cell culture matrices often lack defined physical and/or chemical properties, making standardization and specific design of experimental conditions difficult.

INNOVATION

The invention describes a new, soft matrix for 3D cell culture. It enables researchers to fine-tune the physical and chemical experimental conditions according to their individual requirements. Stiffness, pore diameter and pore connectivity, diffusivity, crosslink density and chemical composition (e.g. growth factors, nutrients, etc.) can be variably adjusted. The invented matrix is cost-effective and storable. Researchers can dissolve the pre-prepared matrix in their culture medium of choice and thereby create a range of defined, reproducible culture conditions adapted to their scientific needs.



Matrix for 3D cell culture:

- ✓ Cost-effective
- ✓ Defined physical properties
- ✓ Tunable culture conditions
- ✓ Pre-prepared & storable
- ✓ Easy-to-use
- ✓ For neurosciences, oncology, ...

COMMERCIAL OPPORTUNITIES

- Storable matrix for 3D cell culture preparation
- 3D cell culture kits with or without growth factors / nutrients / etc.
- Matrix for 3D printing (for organoids etc.)

DEVELOPMENT STATUS

Proof of principle. Successfully tested for primary mouse dorsal root ganglia cells cultures (see images) and human neural progenitor cells.