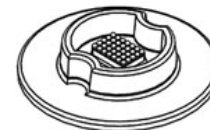




**microtissues**<sup>™</sup>  
natural 3D<sup>™</sup>



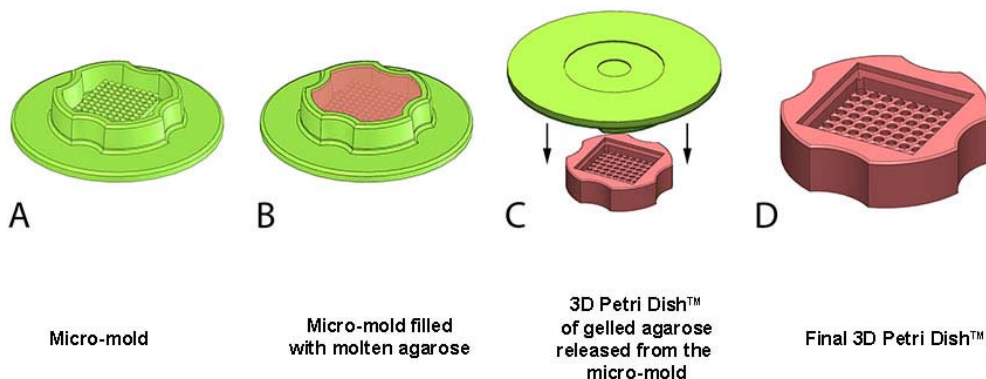
## Introducing the 3D Petri Dish<sup>™</sup>

The **3D Petri Dish<sup>™</sup>** is the natural 3D cell culture environment that is scaffold-free and so maximizes cell-to-cell interactions, just like normal tissue.

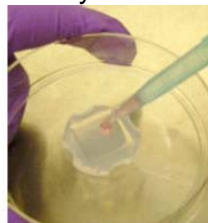
Useful for spheroids, mammospheres, gliomaspheres, hepatospheres, chondrospheres, osteospheres, cell aggregates, neurospheres, cardiospheres, embryoid bodies and myoballs, we sell you the micro-molds to cast your own 3D Petri Dish<sup>™</sup> out of agarose and these gels fit in standard 12 and 24 well dishes. All eight micro-mold designs are autoclavable and reusable, so you save thousands of dollars on your 3D cell culture experiments. You also realize significant new technological advantages:



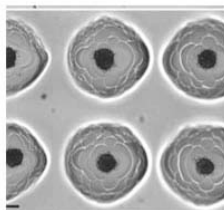
- Make hundreds of spheroids of uniform size in a single pipetting step.
- Control spheroid size.
- Image an array of spheroids on the same optical plane.
- Form spheroids of two different cell types.
- Grow spheroids from single cell clones.
- Harvest spheroids for RT-PCR and Western Blots without enzymes.
- Form microtissues in complex shapes for novel applications.



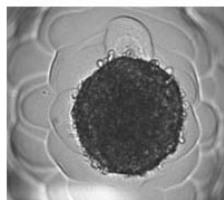
When cells are seeded onto the 3D Petri Dish<sup>™</sup>, cell-to-cell adhesion drives the self assembly of the 3D microtissue, typically in 1-2 days. No synthetic scaffold to alter cell physiology, no variability due to ill defined gels, no animal products. 3D cell culture in a format suitable for high content microscopy that has worked with over twenty different cell types both primary cells and cell lines. See our catalogue of eight different micro-molds designed to meet your 3D cell culture needs.



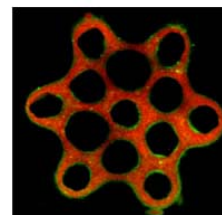
3D Petri Dish<sup>™</sup> being seeded with cells



Spheroids formed in 3D Petri Dish<sup>™</sup>



Spheroid formed in 3D Petri Dish<sup>™</sup>

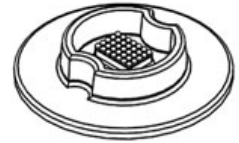


Honeycomb formed in 3D Petri Dish<sup>™</sup>

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natural 3D<sup>™</sup>



## Microtissues with Complex Shapes: The 3D Petri Dish<sup>™</sup>

The 3D Petri Dish<sup>™</sup> is the natural 3D cell culture environment. It's scaffold-free, maximizing cell-to-cell interactions and creates complex shapes, just like normal tissue.



### 12-60TR – Rod shaped microtissues

The 3D Petri Dishes<sup>™</sup> cast from these precision micro-molds fit in standard 12 well plates and have 60 trough shaped recesses. (trough length: 2.2mm, trough width: 400 $\mu$ m, trough depth: 800 $\mu$ m)(4 x 15 array)



### 12-36TO – Toroid shaped microtissues

The 3D Petri Dishes<sup>™</sup> cast from these precision micro-molds fit in standard 12 well plates and have 36 toroid shaped recesses (outer toroid diameter: 1.4mm, diameter of inner peg: 600 $\mu$ m, trough width: 400 $\mu$ m, trough depth: 800 $\mu$ m) (6 x 6 array)



### 24-24TR – Rod shaped microtissues

The 3D Petri Dishes<sup>™</sup> cast from these precision micro-molds fit in standard 24 well dishes and have 24 trough shaped recesses. (trough length 2.2mm, trough width: 400 $\mu$ m, trough depth: 800 $\mu$ m)(3 x 8 array)



### 24-H – Honeycomb shaped microtissues

The 3D Petri Dishes<sup>™</sup> cast from these precision micro-mold fit in standard 24 well plates and have a single honeycomb shaped recesses. (honeycomb maximum size: 3.4mm, diameter of pegs: 600 $\mu$ m, trough width: 400 $\mu$ m, trough depth: 800 $\mu$ m)(single honeycomb).

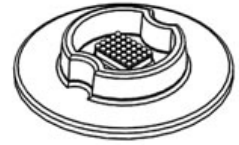
Precision micro-molds are autoclavable and reusable

Mixed packs available

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## Spheroids Made Easy & Uniform: The 3D Petri Dish<sup>™</sup>

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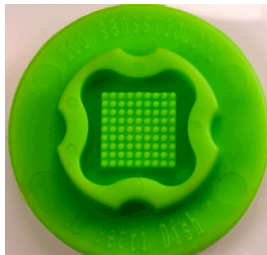
### 12-256 - Small spheroids

The 3D Petri Dishes<sup>™</sup> cast from these precision micro-molds fit in standard 12 well plates and have 256 circular recesses.  
(recess diameter: 400 $\mu$ m, depth: 800 $\mu$ m)(16 x 16 array)



### 24-96 - Small spheroids

The 3D Petri Dishes<sup>™</sup> cast from these precision micro-molds fit in standard 24 well plates and have 96 circular recesses.  
(recess diameter: 400 $\mu$ m, depth: 800 $\mu$ m)(8 x 12 array)



### 12-81 - Large spheroids

The 3D Petri Dishes<sup>™</sup> cast from these precision micro-molds fit in standard 12 well dishes and have 81 circular recesses.  
(recess diameter: 800 $\mu$ m, depth: 800 $\mu$ m)(9 x 9 array)



### 24-81 - Large spheroids

The 3D Petri Dishes<sup>™</sup> cast from these precision micro-mold fit in standard 24 well plates and have 35 circular recesses.  
(recess diameter: 800 $\mu$ m, depth: 800 $\mu$ m)(5 x 7 array)

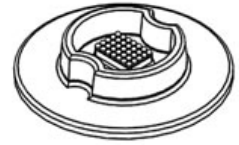
Precision micro-molds are autoclavable and reusable

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## 3D Petri Dish<sup>™</sup>

# TIME Magazine's Top 10 Medical Breakthrough of 2010

The **3D Petri Dish<sup>™</sup>** is the natural 3D cell culture environment. It's scaffold-free and it maximizes cell-to-cell interactions, just like normal tissue. That's why it was used in one of TIME magazine's top ten medical breakthrough's of 2010: The artificial ovary.

TIME Magazine [http://www.time.com/time/specials/packages/article/0,28804,2035319\\_2034529\\_2034518,00.html](http://www.time.com/time/specials/packages/article/0,28804,2035319_2034529_2034518,00.html)

The **3D Petri Dish<sup>™</sup>** has been used for a growing list of primary cells and cell lines. Here's a partial list.

### Primary cells

- Human dermal fibroblasts
- Rat cardiac myocytes
- Rat cardiac fibroblasts
- Human umbilical vein endothelial cells (HUVEC)
- Calf pulmonary artery endothelial cells (CPAE)
- Human theca cells
- Murine neurons from the hippocampus
- Human mesenchymal stem cells
- Zebrafish ectoderm progenitor cells
- Zebrafish mesoderm progenitor cells

### Cell lines

- Murine fibroblasts (3T3)
- Murine endothelial cells (bEnd3)
- Rat endothelial cells (RBE4)
- Human breast cancer cells (MCF-7)
- Human breast cancer cells (T47D)
- Human breast cancer cells (MDA-MB-231)
- Human breast cancer cells (Hs-578T)
- Human cervical cancer cells (HeLa)
- Human epithelial carcinoma cells (A431)
- Human hepatocytes (HepG2)
- Rat hepatocytes (H35)
- Human mesothelioma (M28)
- Human mesothelioma (REN)
- Human granulosa cells (KGN)
- Human trophoblast cells (TCL)
- Rat neuroblastoma cells (RG2)
- Rat glioma cells (9L)
- Rat glioma cells (C6)
- Rat astrocytes (A7)
- Murine neuroblastoma cells (B104)
- Human retinal pigment epithelial cells (ARPE-19)

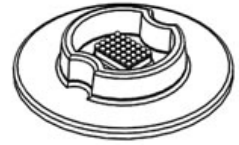


If your cells are adhesive, they will aggregate and form 3D microtissues in the **3D Petri Dish<sup>™</sup>**

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### Frequently Asked Questions: FAQs

**Q1. How do I form the 3D Petri Dish<sup>™</sup> and can I view my 3D microtissues with the microscope?**

**A1.** The precision micro-molds sold by MicroTissues, Inc are used to cast 3D Petri Dishes<sup>™</sup> out of agarose. The agarose is transparent and so 3D spheroids are easily viewed using standard inverted microscopes (brightfield, phase contrast, fluorescent & time lapse).

**Q2. Are the micro-molds used to cast the 3D Petri Dish<sup>™</sup> reusable and can they be autoclaved?**

**A2.** Yes, they're reusable and can be sterilized via a standard steam autoclave (30 min, dry cycle).

**Q3. Do I seed by hand each of the small 256 recesses (Cat# 12-256) to form a 3D spheroid in each of the 256 recesses?**

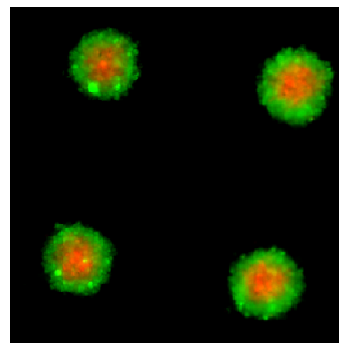
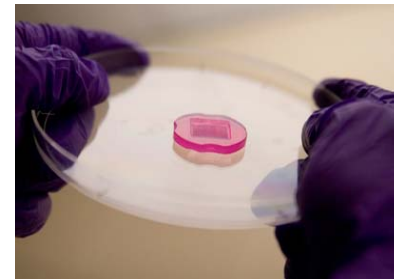
**A3.** No, mono-dispersed cells are pipetted into the single large seeding chamber (190µl) directly above all the recesses. The cells settle and partition into the 256 small recesses where they form a 3D spheroid in each recess.

**Q4. How do I control the size of my spheroids?**

**A4.** Spheroid size is controlled by the total number of mono-dispersed cells seeded into the seeding chamber (i.e., more cells seeded equals larger spheroids).

**Q5. Can I be certain my cell type will form a spheroid?**

**A5.** Over 30 different cell types from a wide variety of tissues (cell lines and primary cells) have formed 3D microtissues in the 3D Petri Dish<sup>™</sup> and the list is growing. If your cells are adhesive, chances are they will aggregate and form 3D spheroids.



**Q6. Can I form mixed spheroids with two different cell types?**

**A6.** Yes, Simply mix the two cell types (mono-dispersed) and seed the mix onto the 3D Petri Dish<sup>™</sup>. The cell mix settles and a mixed spheroid forms at the bottom of each recess.

**Q7. Will my cells proliferate in 3D?**

**A7.** This depends on the cell type. Some cell types will proliferate rapidly in this 3D environment, whereas other cell types show little to no proliferation after formation of a microtissue.

**Q8. Can I form clonal spheroids from individual cells?**

**A8.** Yes, if your cell type proliferates in 3D, it may be possible to form clonal spheroids. Seed the 3D Petri Dish<sup>™</sup> with low cell numbers (< 1 cell per recess). Record the location in the array of those recesses with single cells and growing clones.

**Q9. Can I perform Western blots, RT-PCR and histology on microtissues formed in the 3D Petri Dish<sup>™</sup>?**

**A9.** Yes, by inverting the 3D Petri Dish<sup>™</sup>, microtissues are released and can be harvested. Harvested microtissues can be used for Western blots, RT-PCR and sectioned for histology. No enzymes or dissolving agents are used in the harvesting procedure.

Check out our website for more FAQs and helpful protocols for the 3D Petri Dish<sup>™</sup>

[www.microtissues.com](http://www.microtissues.com)