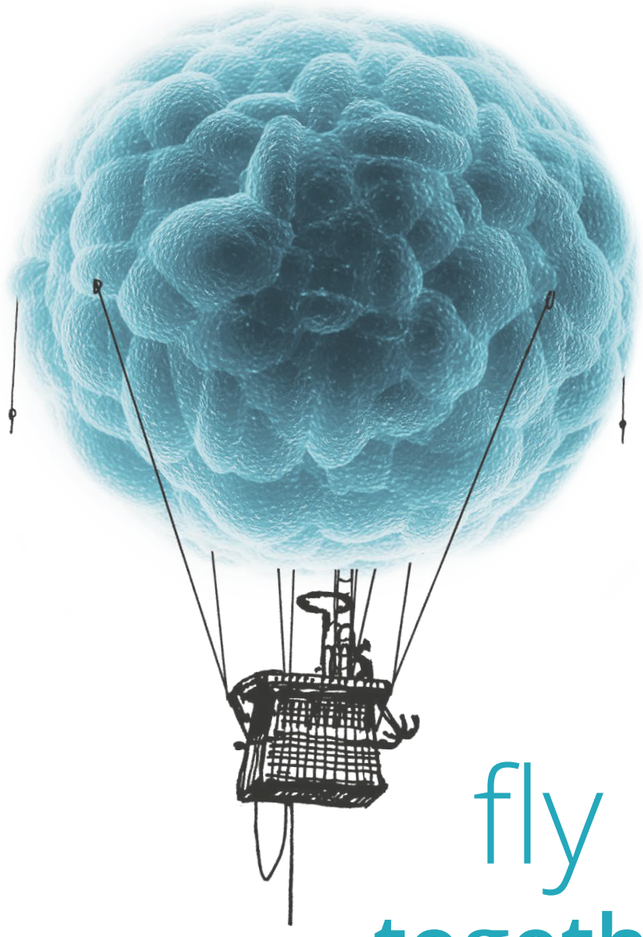

fly high. together.

SPHERICALPLATE 5D®

Ecosystem for Regenerative Medicine

- ▶ 균일하고 표준화된 스페로이드 형성
- ▶ 추가 코팅 처리 필요없이 바로 사용 가능
- ▶ 플레이트당 최대 9000개의 스페로이드 형성 , 웰 별 부분 사용 가능
- ▶ Cell seeding 후 추가 원심분리 단계가 필요하지 않음
- ▶ 다양한 셀라인 및 Co-Culturing of mixed cell 배양 가능
- ▶ COC(Cyclic Olefine Copolymer) 플레이트로 백그라운드 낮은 이미징 가능

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Safety First

„Safety First“ is the principle of the new culture platform Sphericalplate 5D. Right from the start, this new plate provides a physiologic environment yielding in spheroid uniformity, functionality and scalability.

Our special geometry and surface enable every cell to be integrated within a spheroid giving you unparalleled control over your cell culture. Effortless upscaling, easy medium change and full automation capabilities give you all options not only for your lab but also for translational use.

Sphericalplate 5D Testimonials

«The Sphericalplate 5D is working wonderfully with my human prostate cancer cell line.»

Dr. Lissette A. Cruz – Postdoctoral Research Fellow, Department of Diagnostic and Biomedical Sciences, University of Texas Health Science Center at Houston USA

«This plate is a game changer. Everyone who needs a lot of clusters needs this plate!»

Prof. Dr. Dr. Maximilian Y. Emmert – Institute for Regenerative Medicine, IREM, University of Zurich

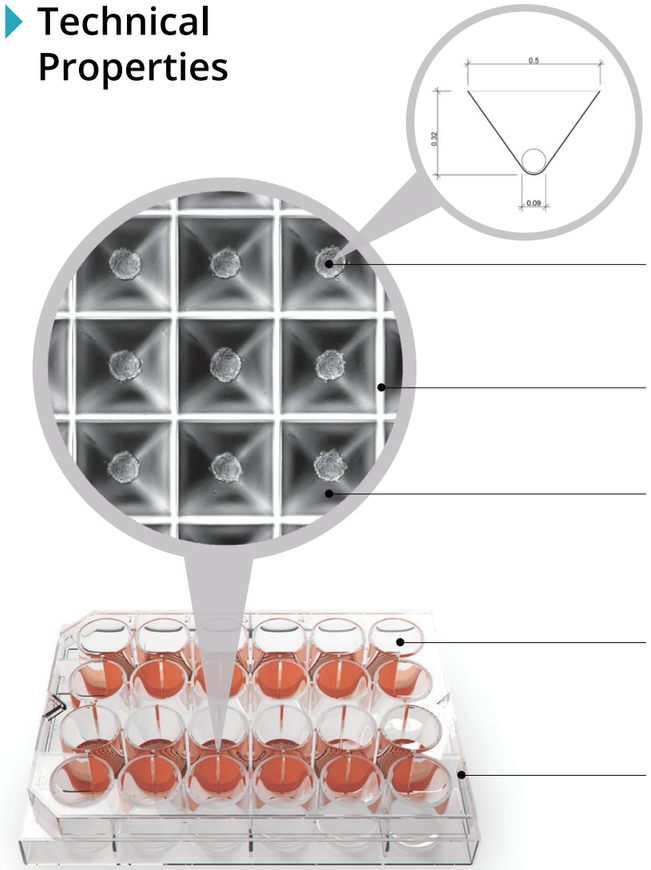
«We just did our first try with #sp5d plates...very happy with the results! very uniform and compac!»

Prof. Chrisna Gouws – Associate Professor at North West University South Africa

«Only with the Sphericalplate 5D from Kugelmeiers we were able to generate embryoid bodies out of different human iPS cell lines. Furthermore, with these plates we were able to scale up our differentiation and increase the yield of cardiomyocytes.»

Dr. Christian Rimmbach – RTC University of Rostock, D

Technical Properties



Cytotoxity	free from detectable cytotoxic substances according to ISO 10993-5*
Plate material	clear and transparent cyclic olefin copolymer (COC)
Surface	proprietary coating in wells A1-A6 and C1-C6
Lid material	clear and transparent polystyrene (PS)
Sterility (irradiation)	guaranteed sterility assurance level (SAL) 10^{-6} according to ISO 11137

*NAMSA-GLP report December 2017

Number of Microwells		Volumes / well	
Per well	**750**	Theoretical max. volume	**3.0 ml**
Per plate	**9000**	Working volume	**0.5-2.0 ml**

Cells Successfully Cultivated in the Sphericalplate 5D

human embryonic stem cells	human breast cancer cell line (MCF-7)
mouse embryonic stem cell line (HM-1)	human breast cancer cell line (BT20)
human bone marrow-derived mesenchymal stromal cells	human A549 cell line from lung carcinoma
human adipose-derived mesenchymal stromal cells	mouse 3T3 fibroblast cell line
human islet cells	human umbilical vein endothelial cell line (huVEC)
rat islet cells	human liver carcinoma cell line (HepG2)
mouse islet cells	human pluripotent stem cell line (Hs181)
human glioblastoma cell line	human osteosarcoma cell line (Saos-2)
human prostate cancer cell line	human caucasian fetal lung cell line (WI 38)
human adrenal gland cancer cell line	human amniotic epithelial cells (hAEC)

For the generation of: 3D cell cultivation / Embryoid bodies / Tumor spheroids

Commercial Benefits

400x Space Savings*
from factor 80 to 400

60x Time Savings*
minimum 60 times versus multi-channel repeater

90x Cost Reduction*
41 to 150 times compared to other platforms, labour saving not included!

* when compared to classical hanging drop cultures or single spheroid formation per well.

Order Information

Specification	Pack of
Sphericalplate 5D 24-well cell culture with Microwells (12)	1 Plate

For special limited introduction offers please contact

info@philekorea.co.kr
02) 2105 - 7020

Sphericalplate 5D SOP extended

Initial cell seeding

1. Before cell seeding, pre-wet the functionalized wells (microwells) of the Sphericalplate 5D using 1 mL rinsing medium. Rinsing fluid can be culture medium with or without serum supplement, or plain PBS. Do not allow the microwells to dry out.

   Note: Due to the applied coating, the medium usually flows regularly everywhere and the air bubbles are released by themselves. Depending on the medium used, some air bubbles can remain within the microwells. If so, they usually release either by light tapping of the Sphericalplate 5D or by centrifugation at 1000 x g for 1 min. Visual inspection by bright field microscopy is recommended to ensure that no bubbles remain trapped within microwells.

2. Calculate the desired number of cells per microwell and resuspend the cells considering they will be seeded in 0.5 mL medium per well. Pre-load the well with 0.5 mL of cell-free medium. Then add your cell suspension in another 0.5 mL of medium, for a total of 1 mL per well. Since cells travel by gravity into the microwells, make sure to generate an evenly distributed cell suspension in a short time. The better the cell suspension is mixed, the more regular the spheroids will be.

   Note: One functionalized well of the Sphericalplate 5D contains 750 microwells. The plate allows a wide range of different sizes of standardized spheroids. On average, for a spheroid to reach 100 µm diameter, 150–600 cells per microwell are needed. For fast-growing cells, it is recommended to seed fewer cells, i.e. 40 cells per microwell. To create large spheroids, it is feasible to load a larger quantity of cells per microwell, i.e. 1'500 cells per microwell.

   To obtain a uniform single-cell suspension without cell aggregation, the use of a cell strainer (e.g. 70 µm) is recommended before seeding. Tumor cells, for example, clump less if the cells are not agitated by hitting or shaking the flask while waiting to detach (e.g. during trypsinization).

3. After seeding, incubate according to the appropriate standard protocol. No further centrifugation is required.

Medium change

4. After spheroid formation has occurred, carefully aspirate supernatant by placing the pipet just below the surface of the medium (away from spheroids) to avoid turbulence. The microwell height has been designed to retain the spheroids during the medium change, but care should be taken not to dislocate them.

   Note: Pipetting must be very slow, otherwise a shock wave might arise, pushing spheroids out of their original microwell and displacing them from one microwell to another one. This should be monitored microscopically.

Spheroid harvest

5. Tilt the plate at 20 to 30 degrees before entering the well with the pipet. Flush the well from top to bottom and harvest the total amount of supernatant containing the spheroids into appropriate container for further analysis. In case of further cultivation of the spheroids within the plate, prevent the tilting of the whole plate and directly perform the flushing procedure. Be aware that there might be a small loss with respect to harvest quantity; if needed, the well can be rinsed further with medium to harvest remaining spheroids.

Various

Plate specifications: The Sphericalplate 5D is a 24 well plate of which wells A1–A6 and C1–C6 (12 wells in total) are loaded with 750 microwells each. A plate contains 9'000 standardized microwells in total. The rows B1–B6 and D1–D6 can, if needed, be used for cultivation of the corresponding 2D cell culture.

Culture conditions: The culture conditions of your specific cells within the Sphericalplate 5D need to be determined individually. For example, oxygen tension within the medium is dependent on medium height. Spheroid size can reach critical sizes concerning oxygen tension in the spheroid core. Therefore, adjust the amount of medium to your cell metabolism. A final volume of 1 mL per well is a starting suggestion.

Long-term cultivation: Depending on the incubation process (incl. humidity, volume and frequency of microscopic examination) evaporation across the plate can occur during long-term cultivation. In this case, an incorporation of an evaporation buffer (e.g. sterile PBS) using the not functionalized outer wells (B1–B6 and D1–D6) is recommended.

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ENABLING UNLIMITED CELL THERAPIES