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SZABO-SCANDIC HandelsgmbH

Quellenstraße 110, A-1100 Wien

T. +43(0)1 489 3961-0

F. +43(0)1 489 3961-7

mail@szabo-scandic.com

www.szabo-scandic.com

[linkedin.com/company/szaboscandic](https://www.linkedin.com/company/szaboscandic) 

Corning® 3D Clear Tissue Clearing Reagent

CORNING



The improved *in vivo* relevancy of 3D cell culture has driven the adoption of these models in drug discovery. However, the imaging techniques used to characterize these models are highly limited. Due to the thickness and opacity of these 3D cellular structures, current imaging technologies cannot penetrate to the center of the tissues, resulting in only the outer 2 to 3 layers of cells being detected. This causes the dark centers often seen in images of 3D cell culture models, which proves highly problematic for accurate analysis as these outer cells are most exposed to compounds, nutrients and oxygen, and thus do not reflect the entire cell population.

Corning 3D Clear tissue clearing reagent can be used as a tissue clearing technique designed specifically to support imaging for 3D cell culture models and plate-based high throughput processing. When paired with fluorescent labeling (e.g., fluorescent protein, immunofluorescence, chemical dyes) and high content confocal microscopy, Corning 3D Clear reagent allows for complete 3D cell culture model characterization and more accurate drug screening.

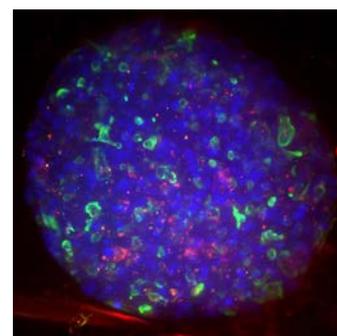
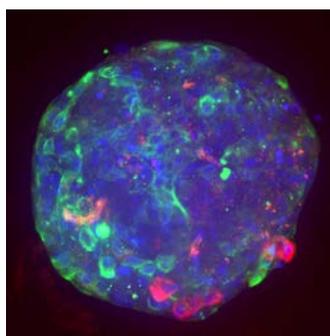
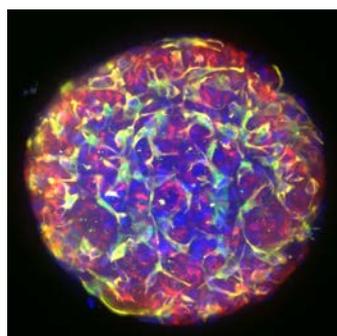
Why use Corning 3D Clear Tissue Clearing Reagent?

While there are dozens of tissue clearing techniques described in literature, there are few that have been demonstrated for use with 3D cell culture models. Additionally, most of these tissue clearing techniques are not designed for compatibility with microplates (e.g., iDISCO, BABB, uDISCO, 3DISCO) or high throughput processing (e.g., CLARITY), and many are not compatible with immunofluorescent labeling (ScaleS4, CUBIC) or have high toxicity (e.g., ClearT). Therefore, the Corning 3D Clear tissue clearing technique was designed to be a rapid, easy-to-use process that is compatible with microplates imaging, fluorescent protein, and immunofluorescence.

To get started with Corning 3D Clear tissue clearing reagent, you can purchase the Corning 3D Clear starter kit or you can purchase the Corning 3D Clear reagent, and then make the required buffer reagents yourself.

Benefits of Corning 3D Clear Tissue Clearing Reagent

- ▶ Rapid tissue clearing
- ▶ Easy-to-use
- ▶ No special equipment required
- ▶ Compatible with immunofluorescent (IF), fluorescent protein (FP), and other fluorescent labels
- ▶ Microplate and automation compatible
- ▶ Reversible for follow up 2D H&E/IHC



Complete Model Characterization

The use of Corning® 3D Clear tissue clearing reagent enables researchers to visualize 3D cell culture models in their entirety through the use of confocal microscopy which results in a 3 to 4 times increase in the number of cells detected. The technique is compatible with Corning flat bottom microplates as well as Corning spheroid microplates, Corning Elplasia® plates, and Corning Matrigel® matrix-3D plates.

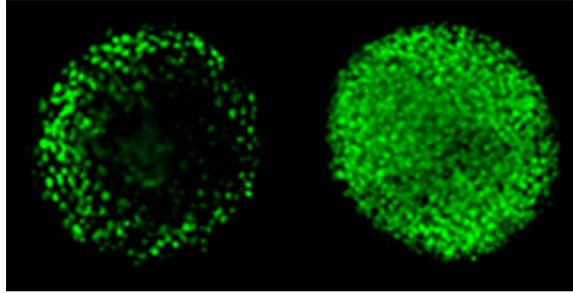


Figure 1. Imaged spheroid before (left) and after (right) tissue clearing.

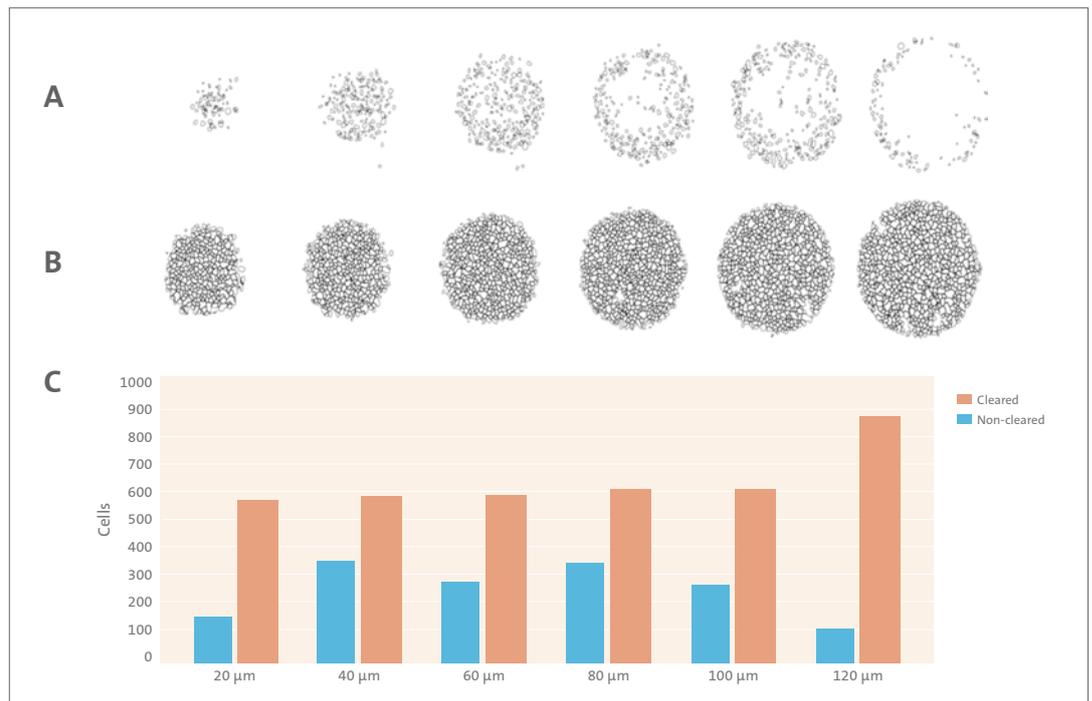


Figure 2. Tissue clearing combined with confocal microscopy allows for a 3 to 4 times increase in cells detected (C) when compared to a 3D cell culture model cleared with Corning 3D Clear reagent (B) and a 3D cell culture model imaged in PBS without clearing (A).

Increased Dose Response Sensitivity

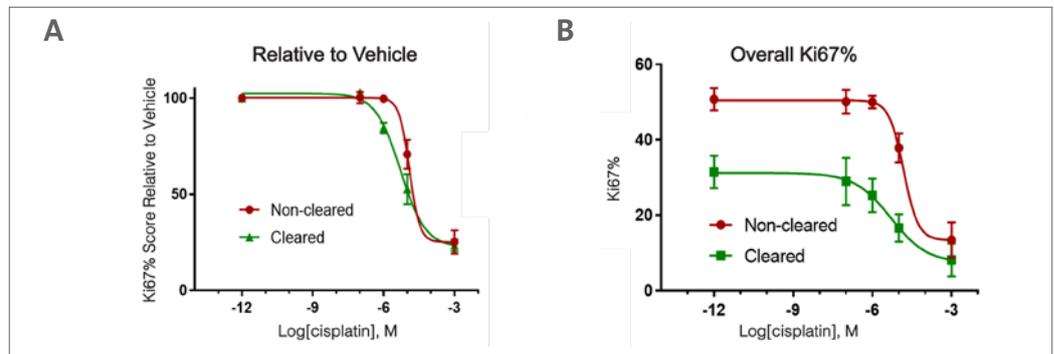


Figure 3. The use of Corning 3D Clear tissue clearing reagent allows for a significant increase in dose response sensitivity (left), as the technique allows for the entire population of cells within a 3D cell culture model to be characterized. Furthermore, due to interrogation of the entire cell population, assessment of drug effect is more accurate. Without clearing, only the exterior cells are surveyed, and as such, measurements of cell proliferation are overestimated, since the outer layers of cells show more proliferation than the interior cells.

Ordering Information

Cat. No.	Description	Qty/Pk	Qty/Cs
5730	Corning® 3D Clear tissue clearing reagent starter kit Includes: Corning 3D Clear reagent (30 mL), Corning 3D Clear antibody buffer (30 mL), Corning 3D Clear blocking buffer (30 mL), Corning 3D Clear penetration buffer (30 mL), Corning 3D Clear washing buffer 10X (70 mL)	--	1 kit
5731	Corning 3D Clear tissue clearing reagent, 10 mL	1	1
5732	Corning 3D Clear tissue clearing reagent, 30 mL	1	1
5733	Corning 3D Clear tissue clearing reagent, 100 mL	1	1
5734	Corning 3D Clear antibody buffer, 30 mL	1	1
5735	Corning 3D Clear antibody buffer, 100 mL	1	1
5736	Corning 3D Clear blocking buffer, 30 mL	1	1
5737	Corning 3D Clear blocking buffer, 100 mL	1	1
5738	Corning 3D Clear penetration buffer, 30 mL	1	1
5739	Corning 3D Clear penetration buffer, 100 mL	1	1
5740	Corning 3D Clear washing buffer 10X, 70 mL	1	1
5741	Corning 3D Clear washing buffer 10X, 200 mL	1	1

For more specific information on claims, visit the Certificates page at www.corning.com/lifesciences.

Warranty/Disclaimer: Unless otherwise specified, all products are for research use only. Not intended for use in diagnostic or therapeutic procedures. Not for use in humans. Corning Life Sciences makes no claims regarding the performance of these products for clinical or diagnostic applications.

For additional product or technical information, visit www.corning.com/lifesciences or call 800.492.1110. Outside the United States, call +1.978.442.2200 or contact your local Corning sales office.

CORNING

Corning Incorporated
Life Sciences

836 North St.
Building 300, Suite 3401
Tewksbury, MA 01876
t 800.492.1110
t 978.442.2200
f 978.442.2476

www.corning.com/lifesciences

ASIA/PACIFIC

Australia/New Zealand
t 61 427286832

Chinese Mainland
t 86 21 3338 4338
f 86 21 3338 4300

India
t 91 124 4604000
f 91 124 4604099

Japan

t 81 3-3586 1996
f 81 3-3586 1291

Korea

t 82 2-796-9500
f 82 2-796-9300

Singapore

t 65 6572-9740
f 65 6735-2913

Taiwan

t 886 2-2716-0338
f 886 2-2516-7500

EUROPE

CSEurope@corning.com

France

t 0800 916 882
f 0800 918 636

Germany

t 0800 101 1153
f 0800 101 2427

The Netherlands

t 020 655 79 28
f 020 659 76 73

United Kingdom

t 0800 376 8660
f 0800 279 1117

All Other European Countries

t +31 (0) 206 59 60 51
f +31 (0) 206 59 76 73

LATIN AMERICA

grupoLA@corning.com

Brazil

t 55 (11) 3089-7400

Mexico

t (52-81) 8158-8400