

Smart Notes

Grow spheroid cultures
with repeatable results
in dishes, flasks or plates

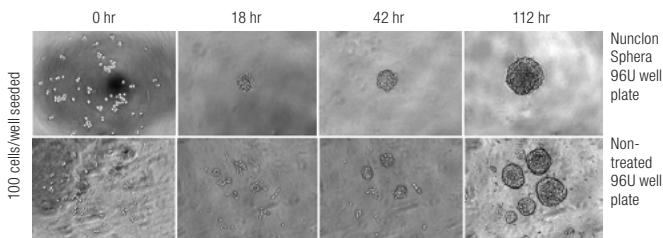
Q How does a low-binding culture surface compare to a non-treated surface in supporting cancer spheroid cultures?

The low-binding culture surface has a unique advantage in supporting the growth of three dimensional (3D) cancer spheroids by inhibiting the adsorption of serum proteins onto the culture surface. Compared to the non-treated polystyrene culture surface, the low-binding culture surface offers a superior solution for faster formation of cancer spheroids with better defined edges and less satellite colonies, thus improving the homogeneity of the 3D culture.

The Thermo Scientific™ Nunclon™ Sphera cultureware features an extremely low-binding surface that inhibits cell attachment to the culture vessel by blocking the adsorption of extracellular matrix (ECM) proteins in the culture system. As a result, the Nunclon Sphera culture surface promotes the self-assembly of cancer cell aggregates that leads to consistent cancer spheroid formation *in vitro*. The quality of the spheroids formed with Nunclon Sphera is superior to that of the non-treated polystyrene surface. This can be extremely vital for automated image analysis where criteria such as clear shape, low background and number of spheroids are important.

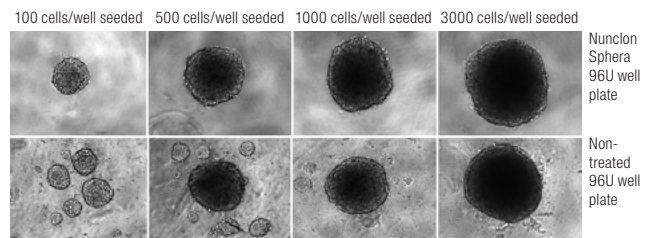
Fast formation of single cancer spheroids in Nunclon Sphera 96-well U-bottom plates

1. The HCT 116 human colon carcinoma cells are seeded into the 96-well U-bottom Nunclon Sphera plate at 100 cells/well in DMEM medium containing 5% FCS. Similarly, cells are seeded into 96-well U-bottom non-treated plates in DMEM containing 5% FCS and 3% methylcellulose. The plates are centrifuged for 10 min at 1000 rpm and incubated at 37°C and 5% CO₂.
2. The HCT 116 cancer spheroids form quickly in the Nunclon Sphera plate after only 18 hours of incubation. Single spheroids with better defined edges and shape can be observed in each well of the Nunclon Sphera plate throughout the entire 112 hour incubation period.



High and consistent quality of cancer spheroids grown in Nunclon Sphera plates

1. The HCT 116 human colon carcinoma cells are seeded into the 96-well U-bottom Nunclon Sphera plate at 100-3000 cells/well in DMEM medium containing 5% FCS. Similarly, cells are seeded into 96-well U-bottom non-treated plates in DMEM containing 5% FCS and 3% methylcellulose. The plates are centrifuged for 10 min at 1000 rpm, and then incubated at 37°C and 5% CO₂ for 112 hours.
2. The HCT 116 cancer spheroid formation in the Nunclon Sphera plate demonstrates less “satellite colonies” at various seeding densities in comparison to the non-treated plate. The background is much cleaner in the Nunclon Sphera plate, leading to better imaging quality of the cell culture.



Summary

Thermo Scientific Nunclon Sphera 96-well U-bottom plates offer an ideal solution for the consistent formation and growth of high quality 3D cancer spheroids.

▶ **See how Thermo Scientific Nunclon Sphera simplifies the growth and consistency of your spheroid cultures. Learn more at: thermoscientific.com/sphera**

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