

Advanced TC™ Cell Culture Vessels

For the propagation of fastidious cells like primary or sensitive cells as well as cells cultivated under restricted growth conditions (serum-free or serum-reduced) Greiner Bio-One offers the Advanced TC™ polymer modification. Based on an innovative technique, the cell culture surface is modified to promote cellular features and functions. Enhanced cell attachment (Fig. 1) and higher proliferation rates (Fig. 2) improve and accelerate cell expansion. Furthermore, the Advanced TC™ surface facilitates consistent and homogenous cell attachment increasing the overall cell yield and reducing cell loss, for example during automated washing steps.

The positive effect on cell morphology is particularly apparent during cultivation of sensitive cells (Fig. 3), serum deprivation or after cellular stress induced by transfection or transduction processes. Moreover, cells cultivated on the Advanced TC™ surface exhibit higher transgene activity after gene transfer/insertion (Fig. 4).

Due to the production process, the modification of the polymer assures consistent and reproducible product quality. Transport and storage can be carried out at room temperature.

Applications:

- Cultivation of fastidious and sensitive cells
- Usage of serum-reduced or serum-free media
- Differentiation of semi-adherent cells
- Transfection
- Transduction
- Automation/High-throughput analysis

Advantages:

- Improved cell adherence
- Consistent cell attachment
- Homogenous cell growth
- In-vivo like morphology
- Increased cell yield
- Optimal cultivation conditions for sensitive cells
- Permits usage of serum-reduced or serum-free media
- Reduced cell loss due to (automated) washing steps
- Improved assay consistency
- Storage at room temperature
- 2-year shelf life

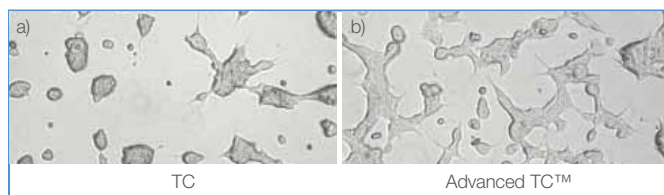


Figure 1: HEK 293 cells were seeded with a concentration of 20,000 cells/well in a 96 well microplate and cultivated in serum-free media at 37 °C and 5 % CO₂. After 48 hours cells are semi-adherent on the standard tissue culture surface (a) whereas on the Advanced TC™ surface (b) HEK 293 cells display improved attachment and their cell-specific morphology.

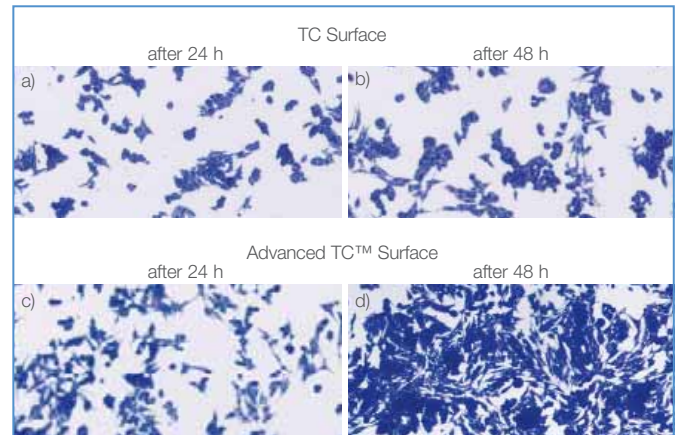


Figure 2: SKNMC cells were seeded with a concentration of 20,000 cells/well in a 96 well microplate with standard tissue culture surface (a, b) and Advanced TC™ surface (c, d) and cultivated at 37 °C and 5 % CO₂ for 24 or 48 hours respectively. Cells were stained with crystal violet to identify living cells. Due to the increased proliferation rate higher cell densities can be detected on the Advanced TC™ surface at both time points.

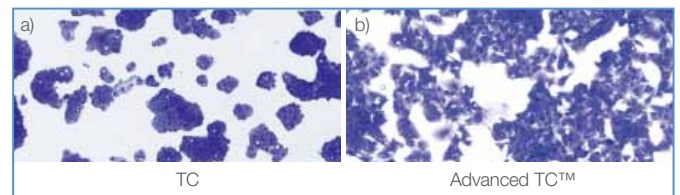


Figure 3: HepG2 cells were seeded with a concentration of 20,000 cells/well in a 96 well microplate with standard tissue culture surface (a) and Advanced TC™ surface (b), cultivated under identical conditions for 48 hours and stained with crystal violet. Only on the Advanced TC™ surface cells display their in-vivo like morphology.

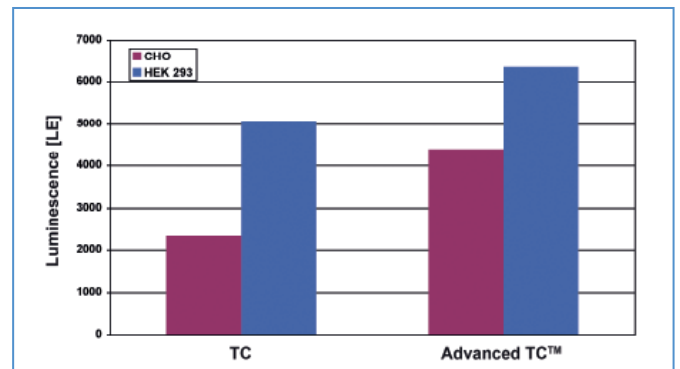


Figure 4: CHO and HEK 293 cells were seeded in a 96 well microplate with a concentration of 40,000 cells/well or 100,000 cells/well respectively, cultivated at 37 °C and 5 % CO₂ for 24 hours and thereafter transfected with the pCMV-GLuc-vector. Both cell lines exhibit raised Luciferase activity on the Advanced TC™ surface.

Further information on Advanced TC™

- **Forum No. 12: Advanced TC™: An innovative surface improving cellular assays** (F071 104)
- **Application Report "Advanced TC™ for improving the cultivation / differentiation of embryonic stem cells"** (F076 036)

1 Cell/Tissue Culture
 2 HTS-Microplates
 3 Immunology/HLA
 4 Microbiology/Bacteriology
 5 Tubes/Multi-Purpose Beakers
 6 Liquid Handling
 7 Molecular Biology
 8 Protein Crystallisation
 9 Separation
 10 Biochips/Microfluidics
 11 Cryo-Technics
 12 Lids/Sealers/CapMats
 13 Reaction Tubes/Analyser Cups
 14 Accessories



Advanced TC™
Standard Cell Culture Flasks
Filter Cap Cell Culture Flasks

Standard Cell Culture Flasks p. 1 | 4
 Filter Cap Cell Culture Flasks p. 1 | 5

Free of detectable DNase, RNase, human DNA
 non-pyrogenic non-cytotoxic

Standard Cell Culture Flasks				
Cat.-No.	690 960	658 970	660 960	661 960
Flask design	-	-	flat	high
Growth area [cm ²]	25	75	175	175
Total volume [ml]	50	250	550	650
Working volume [ml]	5 – 10	15 – 38	20 – 45	20 – 85
Advanced TC™	+	+	+	+
Sterile	+	+	+	+
Standard screw cap	blue	blue	blue	blue
Quantity per bag/case	10/200	5/120	5/50	4/40

Filter Cap Cell Culture Flasks					
Cat.-No.	690 975	658 975	660 975	661 975	779 960
Flask design	-	-	flat	high	AutoFlask™
Growth area [cm ²]	25	75	175	175	83.6
Total volume [ml]	50	250	550	650	110
Working volume [ml]	5 – 10	15 – 38	20 – 45	20 – 85	20 – 40
Advanced TC™	+	+	+	+	+
Sterile	+	+	+	+	+
Filter screw cap	blue	blue	blue	blue	-
Colour code	-	-	-	-	blue
Barcode labelling	-	-	-	-	+
Quantity per bag/case	10/200	5/120	5/50	4/40	10/100



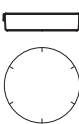
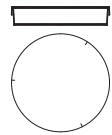


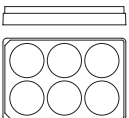
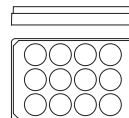
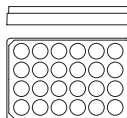
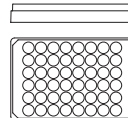
Advanced TC™ Cell Culture Dishes Cell Culture Multiwell Plates

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- ▶ Advanced TC™ CELLview™ Cell Culture Dish with Glass Bottom p. 1 | 9
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Free of detectable
DNase, RNase,
human DNA
non-pyrogenic

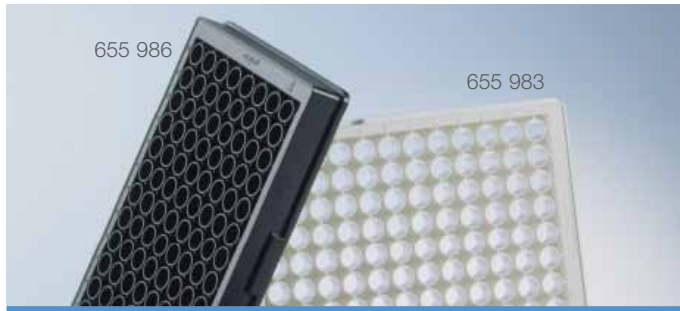
non-
cytotoxic

				
Cat.-No.	627 960	628 960	664 960	639 960
ø [mm] x height [mm]	35 x 10	60 x 15	100 x 20	145 x 20
Growth area [cm ²]	8.7	21	58	143
Total volume [ml]	10	28	100	240
Working volume [ml]	5	6 – 7	16 – 17	25 – 27
Vents	+	+	+	+
Advanced TC™	+	+	+	+
Sterile	+	+	+	+
Quantity per bag/case	10/740	10/600	15/360	5/120

				
Cat.-No.	657 960	665 980	662 960	677 980
Well format	6 well	12 well	24 well	48 well
Growth area per well [cm ²]	9.6	3.9	1.9	1.0
Working volume per well [ml]	2 – 5	2 – 4	0.5 – 1.5	0.5 – 1
Advanced TC™	+	+	+	+
Sterile	+	+	+	+
Lid	+ ^{*)}	+ ^{*)}	+ ^{*)}	+ ^{*)}
Quantity per bag/case	1/100	1/100	1/100	1/100

^{*)} with condensation rings

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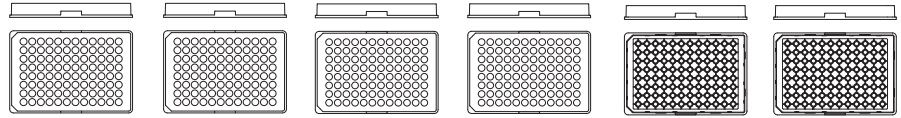


Advanced TC™ 96 Well Cell Culture Microplates

96 Well Cell Culture Microplates p. 1 | 12 ff.

Free of detectable DNase, RNase, human DNA
non-pyrogenic

non-cytotoxic



Cat.-No.	655 980	655 982	655 983	655 986	675 983	675 986
Well format	96 well	96 well	96 well	96 well	96 well	96 well
Well profile	F-bottom/ chimney well	F-bottom/ chimney well	F-bottom/ chimney well	F-bottom/ chimney well	half area	half area
Bottom	solid	solid	μClear®	μClear®	μClear®	μClear®
Colour	clear	clear	white	black	white	black
Growth area per well [mm²]	34	34	34	34	15	15
Working volume per well [μl]	25 – 340	25 – 340	25 – 340	25 – 340	15 – 175	15 – 175
Advanced TC™ / Sterile	+/+	+/+	+/+	+/+	+/+	+/+
Lid	+*)	+*)	+*)	+*)	+	+
Quantity per bag/case	1/100	10/160	8/32	8/32	8/32	8/32

*) with condensation rings

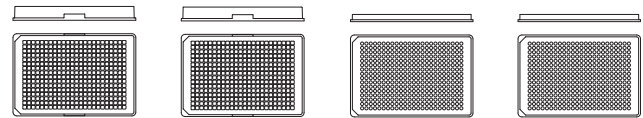


Advanced TC™ 384 Well Cell Culture Microplates

384 Well Cell Culture Microplates p. 1 | 16 ff.

Free of detectable DNase, RNase, human DNA
non-pyrogenic

non-cytotoxic



Cat.-No.	781 983	781 986	788 983	788 986
Well format	384 well	384 well	384 well	384 well
Well profile	F-bottom	F-bottom	Small Volume™	Small Volume™
Bottom	μClear®	μClear®	μClear®	μClear®
Colour	white	black	white	black
Growth area per well [mm²]	10	10	2.7	2.7
Working volume per well [μl]	15 – 110	15 – 110	4 – 25	4 – 25
Advanced TC™ / Sterile	+/+	+/+	+/+	+/+
Lid	+	+	+*)	+*)
Quantity per bag/case	8/32	8/32	15/60	15/60
Plate design			LoBase	LoBase

*) ultra low profile lid