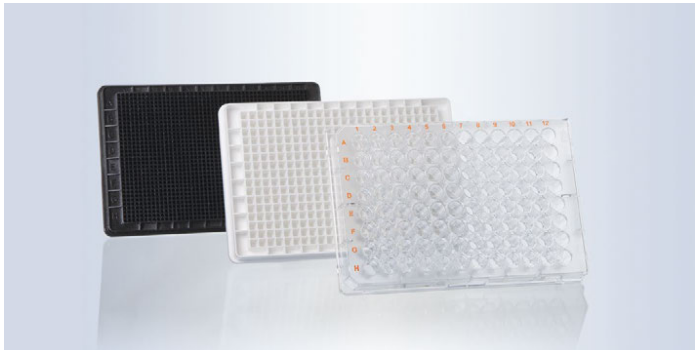
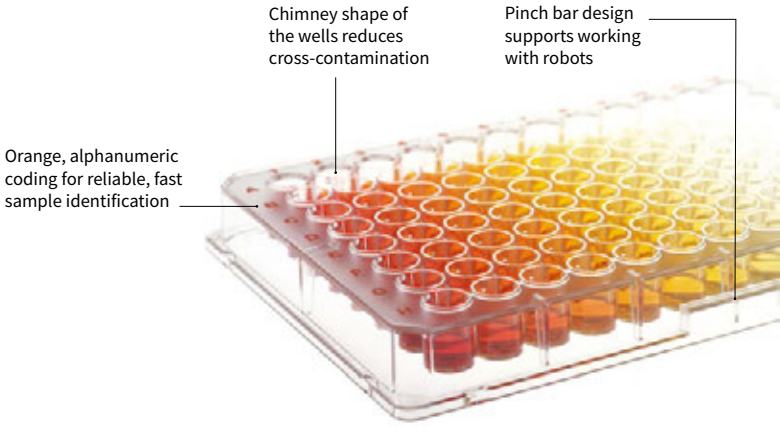
Microplates for cell culture



- ✔ Low well-to-well variance for good reproducibility
- ✔ cellGrade™ plus and cellGrade™ premium surfaces support serum reduction
- ✔ inertGrade surface for successful cultivation of spheroids and stem cells

BRAND*plates*® microplates cellGrade™ | cellGrade™ plus cellGrade™ premium | inertGrade™

BRAND*plates*® microplates with cellGrade™, cellGrade™ plus, cellGrade™ premium and inertGrade™ cell culture surfaces are manufactured from pure, newly synthesized polystyrene (PS). The raw materials used in the plates fulfill the relevant requirements of the USP and ISO 10 993. Automated, ISO class 7 cleanroom production ensures the best possible cleanliness.



Applications

+ Cultivation of adherent cells without additional coatings+

Cultivation of suspension cells

+ High content screenings
+ Fluorescence assays
+ Luminescence assays

Features

+ High purity, crystal-clear polystyrene
+ Different surfaces for different culture conditions and cell types
+ Sterile plate individually packaged with lid
+ For all ANSI/SLAS conforming analytic equipment+

Available with bar code

Алматы (7273)495-231
Ангарск (3955)60-70-56
Архангельск (8182)63-90-72
Астрахань (8512)99-46-04
Барнаул (3852)73-04-60
Белгород (4722)40-23-64
Благовещенск (4162)22-76-07
Брянск (4832)59-03-52
Владивосток (423)249-28-31
Владикавказ (8672)28-90-48
Владимир (4922)49-43-18
Волгоград (844)278-03-48
Вологда (8172)26-41-59
Воронеж (473)204-51-73
Екатеринбург (343)384-55-89
Иваново (4932)77-34-06
Ижевск (3412)26-03-58
Иркутск (395)279-98-46
Казань (843)206-01-48
Калининград (4012)72-03-81
Калуга (4842)92-23-67
Кемерово (3842)65-04-62
Киров (8332)68-02-04
Коломна (4966)23-41-49
Кострома (4942)77-07-48
Краснодар (861)203-40-90
Красноярск (391)204-63-61
Курск (4712)77-13-04
Курган (3522)50-90-47
Липецк (4742)52-20-81
Магнитогорск (3519)55-03-13
Москва (495)268-04-70
Мурманск (8152)59-64-93
Набережные Челны (8552)20-53-41
Нижний Новгород (831)429-08-12
Новокузнецк (3843)20-46-81
Ноябрьск (3496)41-32-12
Новосибирск (383)227-86-73
Омск (3812)21-46-40
Орел (4862)44-53-42
Оренбург (3532)37-68-04
Пенза (8412)22-31-16
Петрозаводск (8142)55-98-37
Псков (8112)59-10-37
Пермь (342)205-81-47
Ростов-на-Дону (863)308-18-15
Рязань (4912)46-61-64
Самара (846)206-03-16
Саранск (8342)22-96-24
Санкт-Петербург (812)309-46-40
Саратов (845)249-38-78
Севастополь (8692)22-31-93
Симферополь (3652)67-13-56
Смоленск (4812)29-41-54
Сочи (862)225-72-31
Ставрополь (8652)20-65-13
Сургут (3462)77-98-35
Сыктывкар (8212)25-95-17
Тамбов (4752)50-40-97
Тверь (4822)63-31-35
Тольятти (8482)63-91-07
Томск (3822)98-41-53
Тула (4872)33-79-87
Тюмень (3452)66-21-18
Ульяновск (8422)24-23-59
Улан-Удэ (3012)59-97-51
Уфа (347)229-48-12
Хабаровск (4212)92-98-04
Чебоксары (8352)28-53-07
Челябинск (351)202-03-61
Череповец (8202)49-02-64
Чита (3022)38-34-83
Якутск (4112)23-90-97
Ярославль (4852)69-52-93

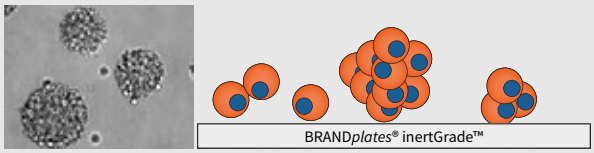
Россия +7(495)268-04-70
Казахстан +7(7172)727-132
Киргизия +996(312)96-26-47

bdf@nt-rt.ru || https://brand.nt-rt.ru/

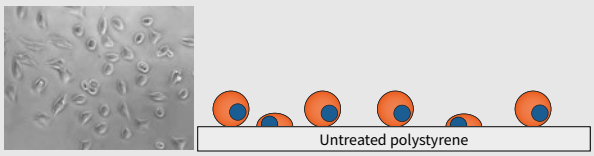
User information

Effects of cell culture surface on morphology and proliferation

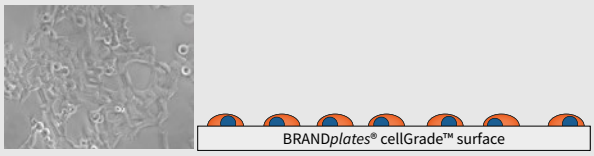
inertGrade™
Supports the formation of spheroid cultures preventing early contact-induced differentiation of stem cells, due to cell repellent surface.



Untreated polystyrene
Supports only restricted adhesion and proliferation of cells. An excellent choice for custom coating with peptides (Poly-D-Lysine or -Ornithin) or extra-cellular matrix proteins.



Cell culture-treated polystyrene
Supports the adhesion and proliferation of cells with different origins. For many cell lines, further surface treatment is not required. This reduces preparation time for an assay and avoids the danger of increased well-to-well variance.



Types

cellGrade™

For the cultivation of adherent cells

- Standard surface for the cultivation of adherent cell lines.
- PS-surface with different chemical groups, such as carboxyl and hydroxyl groups, that are freely accessible.
- Surface is hydrophilic compared with non-treated PS.
- Serum components are easily bound onto the freely accessible chemical groups, allowing an indirect adhesion of cells.

cellGrade™ plus

For reduced-serum media cultivation of cells

- For cultivation of fastidious cell lines.
- In addition to carboxyl and hydroxyl chemical groups, free amino groups are present on the surface.
- The surface has a protein-like composition, so cells can directly attach and spread out.
- Cells adhere faster, better rate of yield.
- Sensitive cell lines can be cultivated.

cellGrade™ premium

Poly-D-Lysine equivalent surface

- Poly-D-Lysine equivalent surface, with analogous results regarding growth performance and cell morphology.
- Optimal adhesion of cells to the surface reduces cell damage when washing frequently.
- Cultivation of cell lines with the highest demands on their environment.
- Surface suited for serum-free and serum-reduced cultivation of cells.
- Good shelf life at room temperature.
- The alternative option to biologically coated surfaces.

inertGrade™

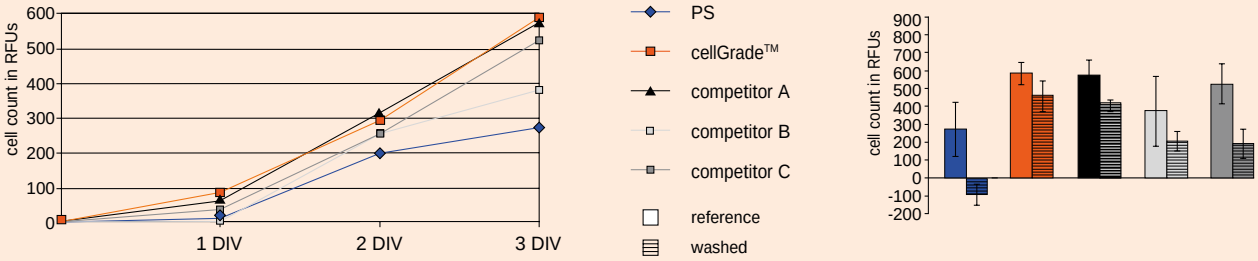
For cultivation of suspension cells

- Especially suited for cell cultures when adhesion is not desired.
- Optimized surface characteristics reduce cell adhesion, protein adsorption and keeps enzyme activation and cellular activation to a minimum.
- Inhibits early differentiation of stem cells.

Technical information & Ordering data

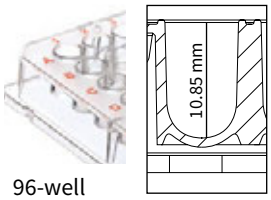
cellGrade™ microplates

Comparison of proliferation and adhesion after washing (CHO cells)



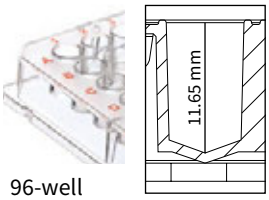
96-well

Standard microplates



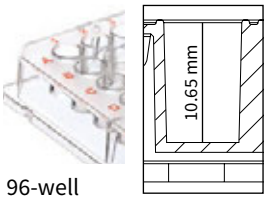
96-well

Bottom	U-bottom
Color	transparent
Well volume [µl]	330
Working volume [µl]	40-300
Bottom thickness [µm]	850
Cultivation area [mm²]	n/a
	sterile
Lid	50 pieces
Pack of	50 pieces (individually wrapped)
Cat. No.	781960



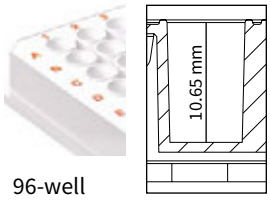
96-well

Bottom	V-bottom
Color	transparent
Well volume [µl]	360
Working volume [µl]	40-330
Bottom thickness [µm]	850
Cultivation area [mm²]	33
	sterile
Lid	50 pieces
Pack of	50 pieces (individually wrapped))
Cat. No.	781961



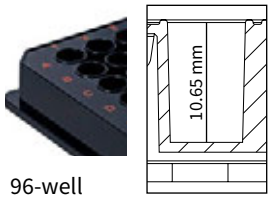
96-well

Bottom	F-bottom
Color	transparent
Well volume [µl]	350
Working volume [µl]	50-320
Bottom thickness [µm]	850
Cultivation area [mm²]	32
	sterile
Lid	50 pieces
Pack of	50 pieces (individually wrapped)
Cat. No.	781962



96-well

Bottom	F-bottom
Color	white
Well volume [µl]	350
Working volume [µl]	50-320
Bottom thickness [µm]	850
Cultivation area [mm²]	32
	sterile
Lid	50 pieces
Pack of	50 pieces (individually wrapped)
Cat. No.	781965

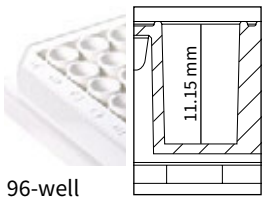


96-well

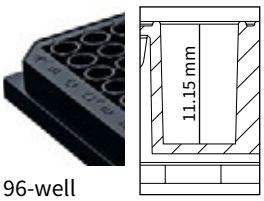
Bottom	F-bottom
Color	black
Well volume [µl]	350
Working volume [µl]	50-320
Bottom thickness [µm]	850
Cultivation area [mm²]	32
	sterile
Lid	50 pieces
Pack of	50 pieces (individually wrapped)
Cat. No.	781968

96-well

with transparent bottom



96-well

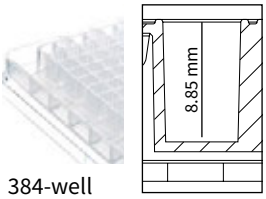


96-well

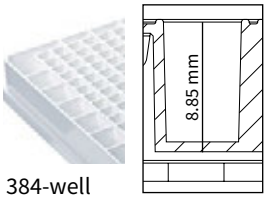
Bottom	F-bottom		F-bottom	
Color	white		black	
Well volume [µl]	330		330	
Working volume [µl]	50-310		50-310	
Bottom thickness [µm]	750		750	
Cultivation area [mm²]	31		31	
	sterile		sterile	
Lid	50 pieces	1 piece	50 pieces	1 piece
Pack of	50 pieces (individually wrapped)	5 pieces (1 bag of 5 pieces)	50 pieces (individually wrapped)	5 pieces (1 bag of 5 pieces)
Cat. No.	781970	781974	781971	781975

384-well

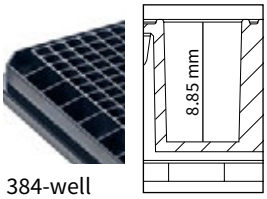
Standard microplates



384-well



384-well

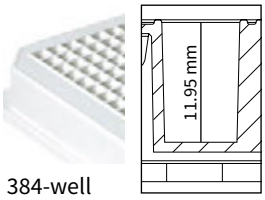


384-well

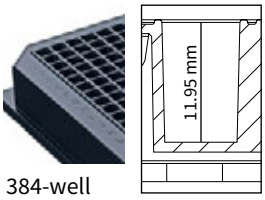
Bottom	F-bottom	F-bottom	F-bottom
Color	transparent	white	black
Well volume [µl]	100	100	100
Working volume [µl]	25-28	25-28	25-28
Bottom thickness [µm]	650	650	650
Cultivation area [mm²]	12	12	12
	sterile	sterile	sterile
Lid	50 pieces	50 pieces	50 pieces
Pack of	50 pieces (individually wrapped)	50 pieces (individually wrapped)	50 pieces (individually wrapped)
Cat. No.	781980	781981	781982

384-well

with transparent bottom



384-well



384-well

Bottom	F-bottom		F-bottom	
Color	white		black	
Well volume [µl]	120		120	
Working volume [µl]	25-100		25-100	
Bottom thickness [µm]	400		400	
Cultivation area [mm²]	13		13	
	sterile		sterile	
Lid	50 pieces	1 piece	50 pieces	1 piece
Pack of	50 pieces (individually wrapped)	5 pieces (1 bag of 5 pieces)	50 pieces (individually wrapped)	5 pieces (1 bag of 5 pieces)
Cat. No.	781986	781988	781987	781989

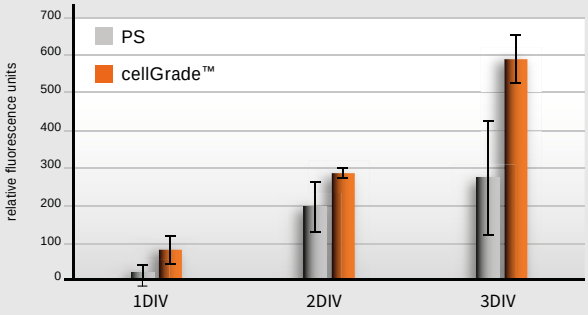
Technical Note

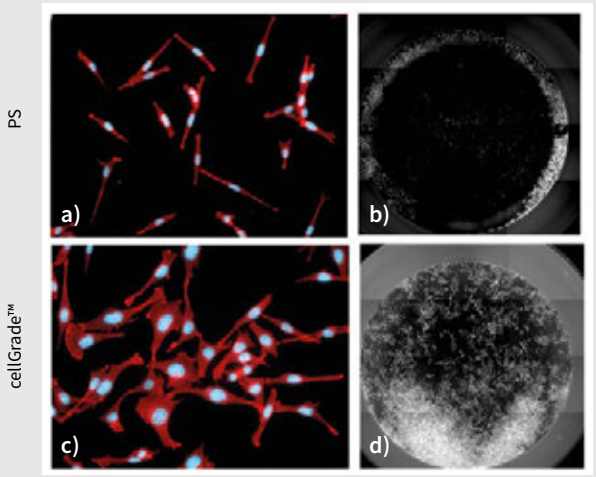
Proliferation of CHO cells on BRAND*plates*® cellGrade™ surface

Author: BRAND GMBH + CO KG

Culture conditions

For each experiment CHO cells were seeded at a density of 6000 cells/cm² in wells of transparent 96-well F-bottom BRAND*plates*® (#781962) and cultivated in DMEM medium containing 7% FCS at 37 °C, 95% relative humidity and 5% CO_2.





a), c) Phalloidin-TRITC marked F-Aktin (red), nucleus (blue)

CHO cells cultivated on BRAND*plates*® cellGrade™ show higher fluorescence signals indicating higher cell numbers when compared to non-treated microplates (PS).

b), d) The whole-well scans show significantly improved cell adhesion on the cellGrade™ surface after completing crystal violet staining.

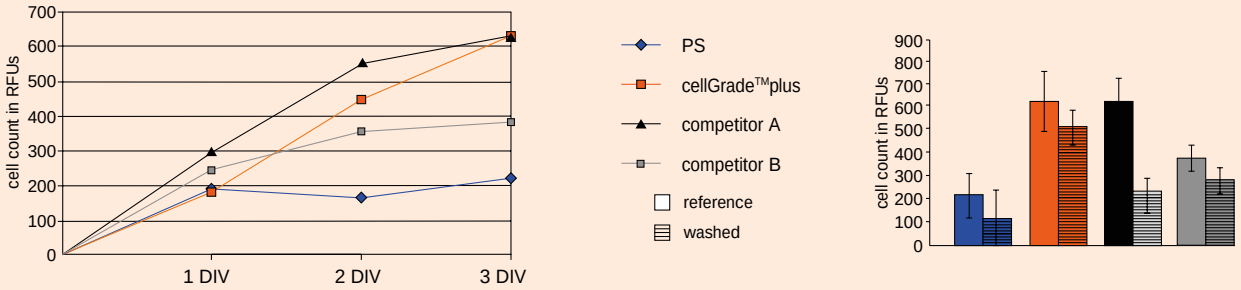
Conclusion

BRAND*plates*® with cellGrade™ surface perfectly support attachment and proliferation of CHO cells.

Technical information & Ordering data

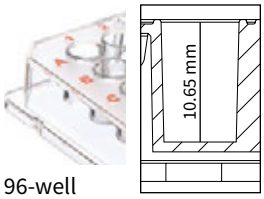
cellGrade™ plus microplates

Comparison of proliferation and adhesion after washing (HepG2 cells)



96-well

Standard microplates

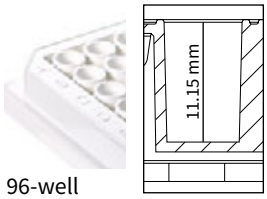


96-well

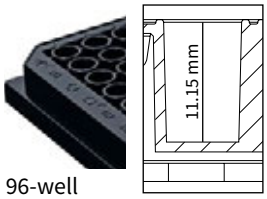
Bottom	F-bottom
Color	transparent
Well volume [µl]	350
Working volume [µl]	50-320
Bottom thickness [µm]	850
Cultivation area [mm²]	32
	sterile
Lid	50 pieces
Pack of	50 pieces (individually wrapped)
Cat. No.	782022

96-well

with transparent bottom



96-well



96-well

Bottom	F-bottom		F-bottom	
Color	white		black	
Well volume [µl]	330		330	
Working volume [µl]	50-310		50-310	
Bottom thickness [µm]	750		750	
Cultivation area [mm²]	31		31	
	sterile		sterile	
Lid	50 pieces	1 piece	50 pieces	1 piece
Pack of	50 pieces (individually wrapped)	5 pieces (1 bag of 5 pieces)	50 pieces (individually wrapped)	5 pieces (1 bag of 5 pieces)
Cat. No.	782030	782034	782031	782035

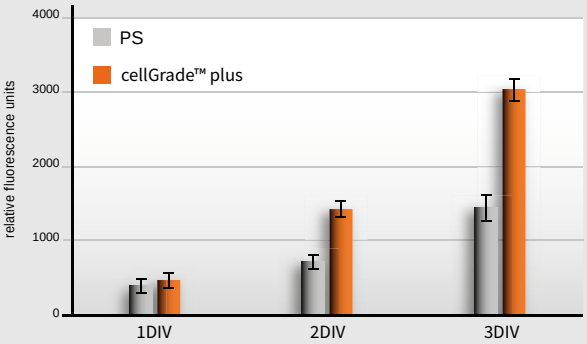
Technical Note

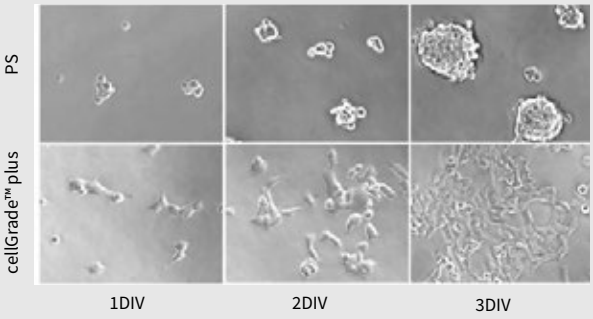
Proliferation of HEK293 cells on BRAND*plates*® cellGrade™ plus surface

Author: BRAND GMBH + CO KG

Culture conditions

For each experiment HEK293 cells were seeded at a density of 6000 cells/cm² in wells of transparent 96-well F-bottom BRAND*plates*® (#782022) and cultivated in DMEM medium containing 7% FCS at 37 °C, 95% relative humidity and 5% CO_2.





Comparative phase contrast images of HEK293 cells cultivated in untreated (PS) and cellGrade™ plus treated microplates. DIV days in vitro, (200x zoom)

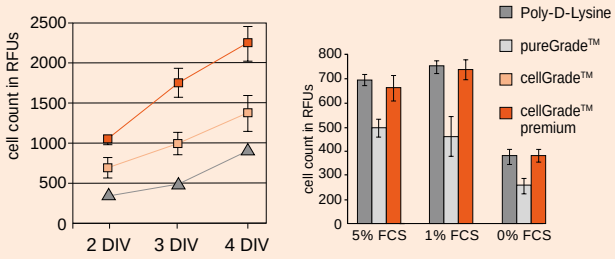
Conclusion

BRAND*plates*® with cellGrade™ plus surface perfectly support attachment and proliferation of HEK293 cells.

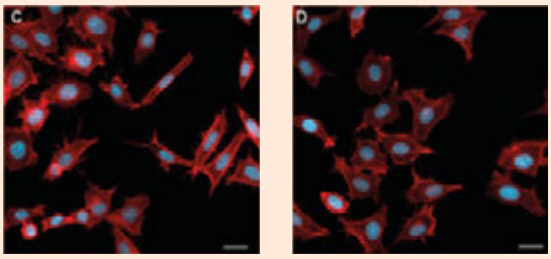
Technical information & Ordering data

cellGrade™ premium microplates

comparison of proliferation (HeLa cells)



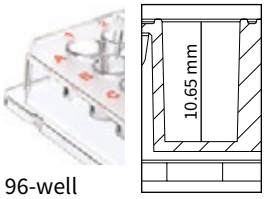
Actin cytoskeleton (red) with cell nucleus (blue)



cellGrade™ premium | Poly-D-Lysine

96-well

Standard microplates

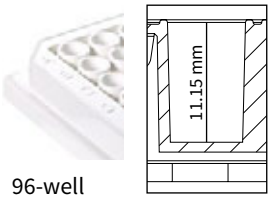


96-well

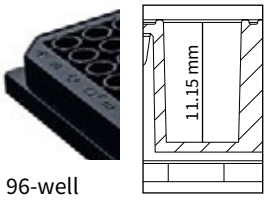
Bottom	F-bottom
Color	transparent
Well volume [µl]	350
Working volume [µl]	50-320
Bottom thickness [µm]	850
Cultivation area [mm²]	32
	sterile
Lid	50 pieces
Pack of	50 pieces (individually wrapped)
Cat. No.	782082

96-well

with transparent bottom



96-well



96-well

Bottom	F-bottom		F-bottom	
Color	white		black	
Well volume [µl]	330		330	
Working volume [µl]	50-310		50-310	
Bottom thickness [µm]	750		750	
Cultivation area [mm²]	31		31	
	sterile		sterile	
Lid	50 pieces	1 piece	50 pieces	1 piece
Pack of	50 pieces (individually wrapped)	5 pieces (1 bag of 5 pieces)	50 pieces (individually wrapped)	5 pieces (1 bag of 5 pieces)
Cat. No.	782090	782094	782091	782095

Application Note

High yields of transfected cells with BRAND*plates*® cellGrade™ premium surface

Author: Martin Liss, Sabine Kraft Neuromuscular & Cardiovascular Cell Biology, Max-Delbrück-Centrum Berlin, Germany

Introduction

Transfection is defined as non-viral DNA/gene delivery into eukaryotic cells performed by several chemical, physical or biological methods. The subsequent exogenous expression of a tagged protein in cell culture is a well established approach to investigate function and localization of the protein of interest. In normal culture medium, nucleases present in serum could degrade DNA while other serum components tend to form complexes with nucleic acids, thereby reducing the availability of DNA for transfection [Ref.1]. To avoid such interference, serum free culture medium is required for successful transfections. However, serum deprivation can reduce cell viability, proliferation and attachment. To partially compensate for these negative effects arising from serum deprived culture conditions, special modifications of cell culture surfaces have been developed to support cell attachment and increase cellular yields after transfection. Here we compare 3 different microplate surfaces regarding their ability to support proliferation and attachment of transfected cells during washing steps. It is shown, that on the cellGrade™ premium surface transfected cells were retained in same quantity when compared to 96-well microplates of other manufacturers.

Material and Methods

HEK293.EBNA cells were cultured in DMEM 4.5 g/L Glucose with L-glutamine supplemented with 10% fetal bovine serum and 100 units/mL penicillin/streptomycin. Cells were seeded in comparable tissue culture treated black 96-well microplates with transparent bottoms and grown at 37 °C with 5% CO_2. A total of 200 ng/well GFP-encoding plasmid-DNA pEGFP-C1 was used to transfect cells using 40 kDa linear polyethylenimine at a ratio of 1:3 DNA:PEI40 24 hrs later [Ref.2]. After an incubation of 72 hrs, culture medium was changed to PBS and one set of cultures from each microplate was washed additional 2 times with 200 µL PBS at 37 °C using an electronic multichannel pipette at lowest dispensing speed in order to not disturb the cell monolayer. For read-out a TECAN Infinite® M200 PRO was used to detect the remaining relative fluorescent units (RFUs) at ex485/em535 nm. The detector of the plate reader was adjusted according to the highest signal intensity to be measured.

Results

A transfection mastermix was used to transfect cultured cells on different plates in order to achieve comparable transfection efficiency (Fig.1).

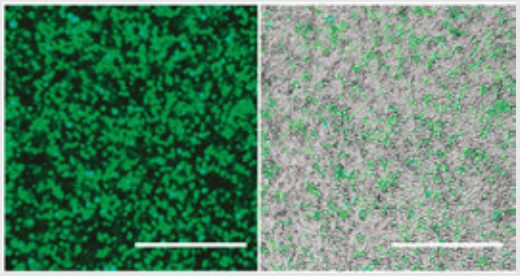


Figure 1: Example of transfected HEK293.EBNA cells expressing GFP 72 hrs post-transfection. Scale bar 500 µm.

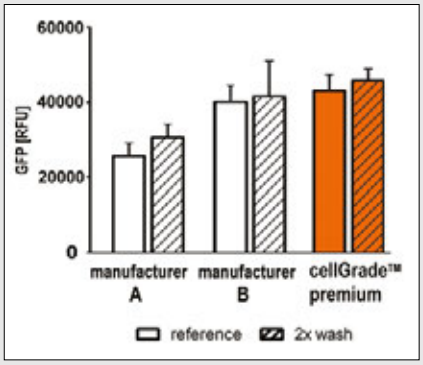


Figure 2: Measurement of GFP relative fluorescence units (RFU) shows the good performance of BRAND*plates*® cellGrade™ premium surface in promoting proliferation and attachment of transfected HEK293.EBNA cells.

To ensure an equal pipetting strength during washing an electronic multichannel pipette was used. In this case the only variable is the TC culture surface of different manufacturers. The quantification of relative GFP fluorescence units shows that cellGrade™ premium surface promote proliferation of transfected cells and retain GFP expressing cells after washing to the same extent as TC-treated microplates from competitors.

Conclusion

BRAND*plates*® cellGrade™ premium surface can improve experimental performance when cell proliferation or cell binding to culture surface is critical.

References:

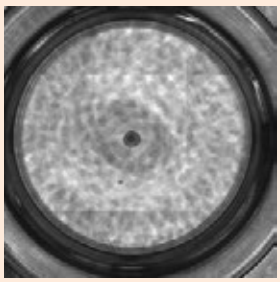
1: D. Llères, J.M. Weibel, D. Heissler, G. Zuber, G. Duportail, Y. Mély, Dependence of the cellular internalization and transfection efficiency on the structure and physicochemical properties of cationic detergent/DNA/liposomes, J. Gene. Med. 6 (2004) 415–428.

2: SP. Huh et al., Optimization of 25 kDa linear polyethylenimine for efficient gene delivery, Biologicals. (2007), 35(3):165-71.

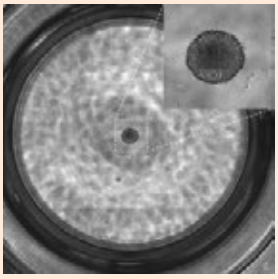
Technical information & Ordering data

inertGrade™ microplates

- Surface effectively suppresses cell adhesion
- For cultivating stem cells
- Ideal for generating tumor spheroids



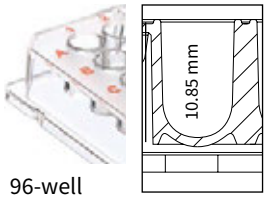
Wellscan of U-bottom plate (781900) with single spheroid formed by L292 cells.



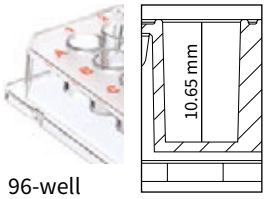
Close-up ot the spheroid

96-well

Standard microplates



96-well

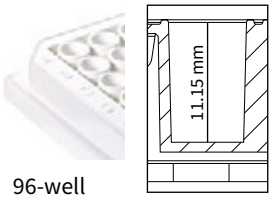


96-well

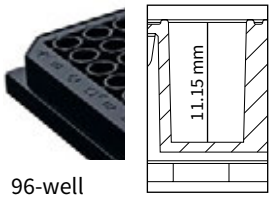
Bottom	U-bottom	F-bottom
Color	transparent	transparent
Well volume [µl]	330	350
Working volume [µl]	40-300	50-320
Bottom thickness [µm]	850	850
Cultivation area [mm²]	n.a.	32
	sterile	sterile
Lid	50 pieces	50 pieces
Pack of	50 pieces (individually wrapped)	50 pieces (individually wrapped)
Cat. No.	781900	781902

96-well

with transparent bottom



96-well



96-well

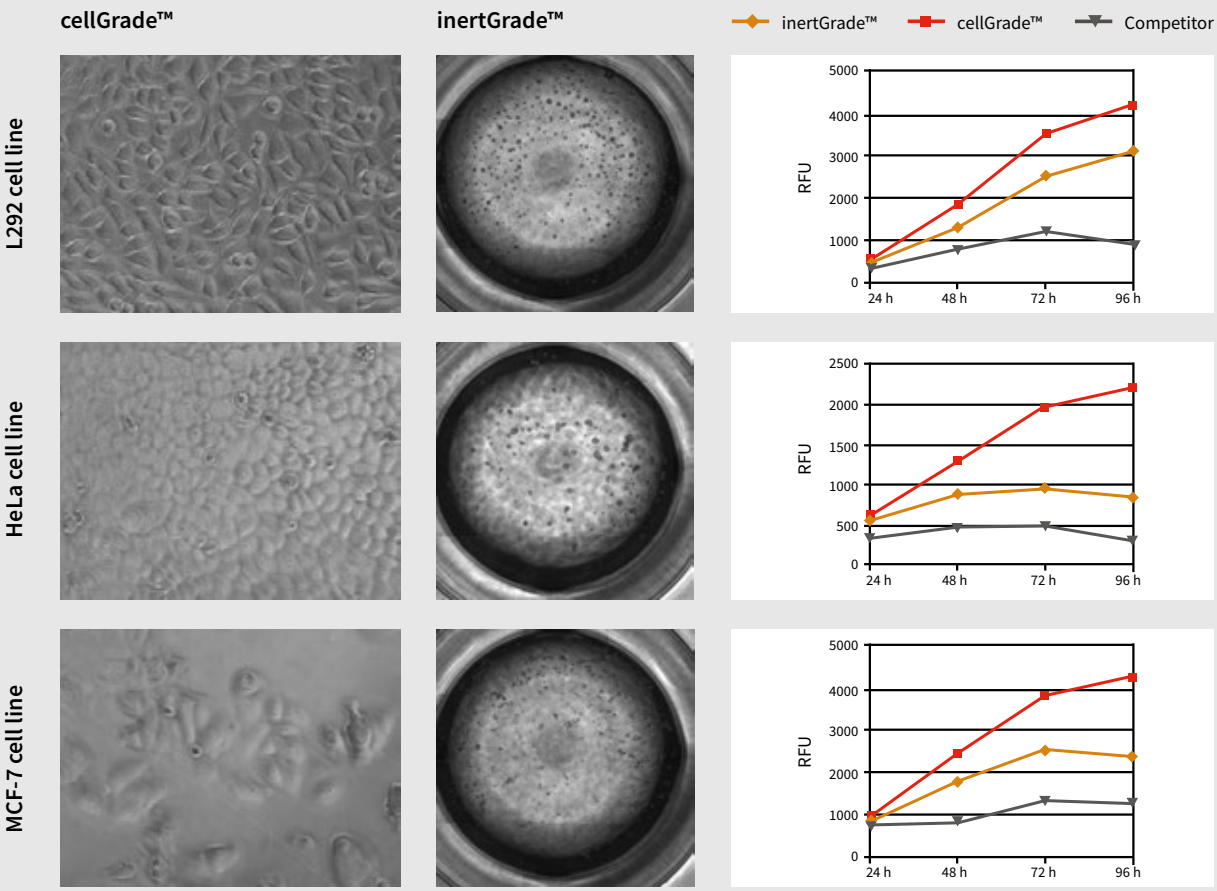
Bottom	F-bottom		F-bottom	
Color	white		black	
Well volume [µl]	330		330	
Working volume [µl]	50-310		50-310	
Bottom thickness [µm]	750		750	
Cultivation area [mm²]	31		31	
	sterile		sterile	
Lid	50 pieces	1 piece	50 pieces	1 piece
Pack of	50 pieces (individually wrapped)	5 pieces (1 bag of 5 pieces)	50 pieces (individually wrapped)	5 pieces (1 bag of 5 pieces)
Cat. No.	781910	781912	781911	781913

Application Note

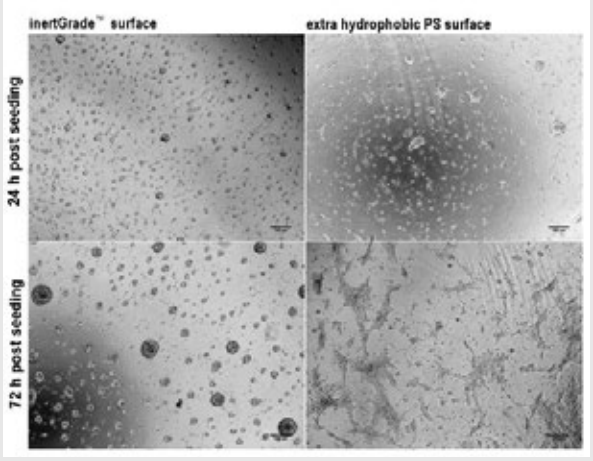
BRAND*plates*® inertGrade™

Author: Dr. Benedikt Busse, zell-kontakt GmbH, Nörten-Hardenberg, Germany

In many cell culture techniques, such as producing tumor spheroids or embryoid bodies, the suppression of integrin-mediated adhesion to surfaces plays a crucial role.
The illustration shows that adherent growing cell lines can be made to form spheroids with a comparably high cell division rate by cultivating them on the inertGrade™ cell culture surface.



The cell-repellent surface of the BRAND*plates*® inertGrade™ also demonstrates effective suppression of cell adherence when cultivating stem cells. This prevents contact-induced and uncontrolled differentiation and maintains the stem cell character.



Алматы (7273)495-231
Ангарск (3955)60-70-56
Архангельск (8182)63-90-72
Астрахань (8512)99-46-04
Барнаул (3852)73-04-60
Белгород (4722)40-23-64
Благовещенск (4162)22-76-07
Брянск (4832)59-03-52
Владивосток (423)249-28-31
Владикавказ (8672)28-90-48
Владимир (4922)49-43-18
Волгоград (844)278-03-48
Вологда (8172)26-41-59
Воронеж (473)204-51-73
Екатеринбург (343)384-55-89
Иваново (4932)77-34-06
Ижевск (3412)26-03-58
Иркутск (395)279-98-46
Казань (843)206-01-48
Калининград (4012)72-03-81
Калуга (4842)92-23-67
Кемерово (3842)65-04-62
Киров (8332)68-02-04
Коломна (4966)23-41-49
Кострома (4942)77-07-48
Краснодар (861)203-40-90
Красноярск (391)204-63-61
Курск (4712)77-13-04
Курган (3522)50-90-47
Липецк (4742)52-20-81
Магнитогорск (3519)55-03-13
Москва (495)268-04-70
Мурманск (8152)59-64-93
Набережные Челны (8552)20-53-41
Нижний Новгород (831)429-08-12
Новокузнецк (3843)20-46-81
Ноябрьск (3496)41-32-12
Новосибирск (383)227-86-73
Омск (3812)21-46-40
Орел (4862)44-53-42
Оренбург (3532)37-68-04
Пенза (8412)22-31-16
Петрозаводск (8142)55-98-37
Псков (8112)59-10-37
Пермь (342)205-81-47
Ростов-на-Дону (863)308-18-15
Рязань (4912)46-61-64
Самара (846)206-03-16
Саранск (8342)22-96-24
Санкт-Петербург (812)309-46-40
Саратов (845)249-38-78
Севастополь (8692)22-31-93
Симферополь (3652)67-13-56
Смоленск (4812)29-41-54
Сочи (862)225-72-31
Ставрополь (8652)20-65-13
Сургут (3462)77-98-35
Сыктывкар (8212)25-95-17
Тамбов (4752)50-40-97
Тверь (4822)63-31-35
Тольятти (8482)63-91-07
Томск (3822)98-41-53
Тула (4872)33-79-87
Тюмень (3452)66-21-18
Ульяновск (8422)24-23-59
Улан-Удэ (3012)59-97-51
Уфа (347)229-48-12
Хабаровск (4212)92-98-04
Чебоксары (8352)28-53-07
Челябинск (351)202-03-61
Череповец (8202)49-02-64
Чита (3022)38-34-83
Якутск (4112)23-90-97
Ярославль (4852)69-52-93

Россия +7(495)268-04-70
Казахстан +7(7172)727-132
Киргизия +996(312)96-26-47

bdf@nt-rt.ru || https://brand.nt-rt.ru/