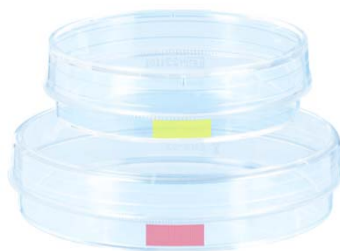


Cell and Tissue Culture



 **SARSTEDT**

昱昌材料科技 Flamegold Material Corp.

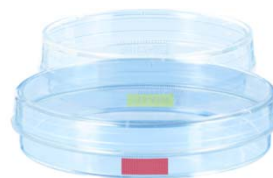
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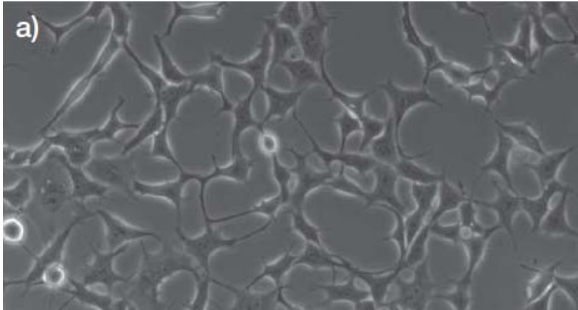
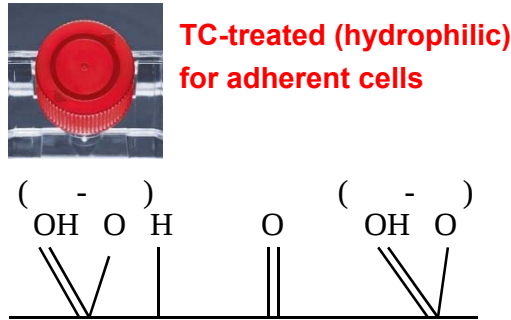
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- MiniPERM® Bioreactor P12-13

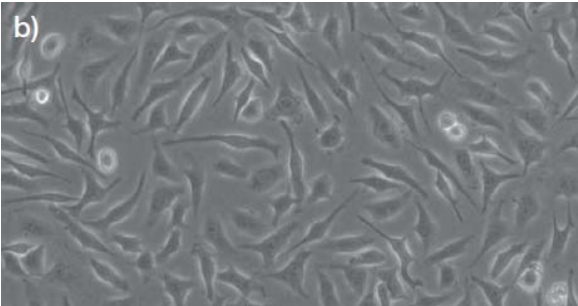
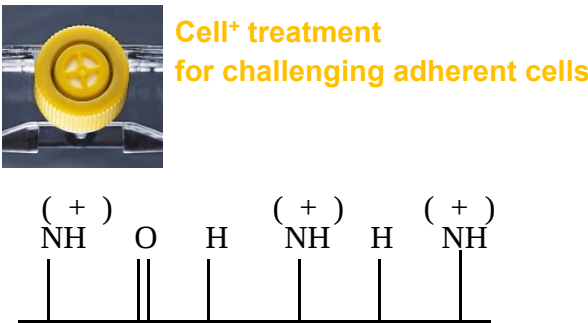


三種表面處理適合不同類型的細胞應用

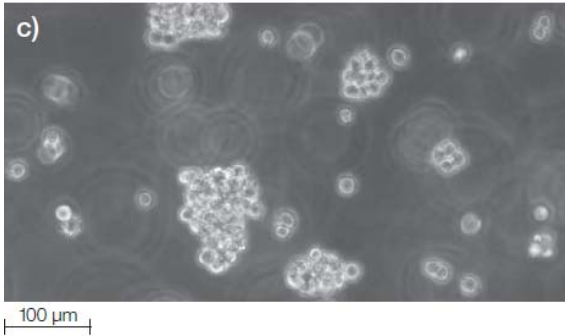
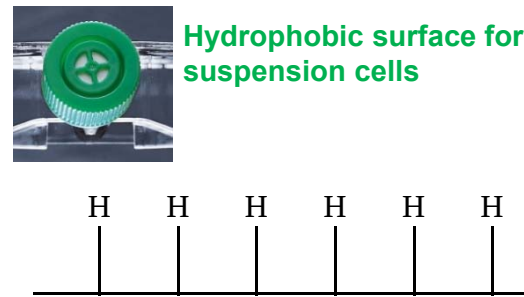
- 基礎親水表面: 適合貼附型細胞



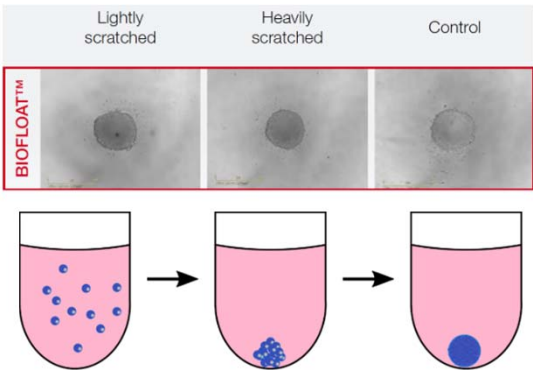
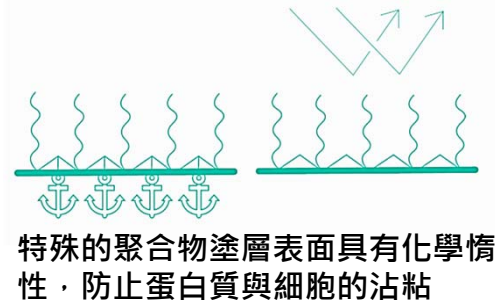
- 增強親水表面: 適合難以貼附的細胞或是原代細胞培養



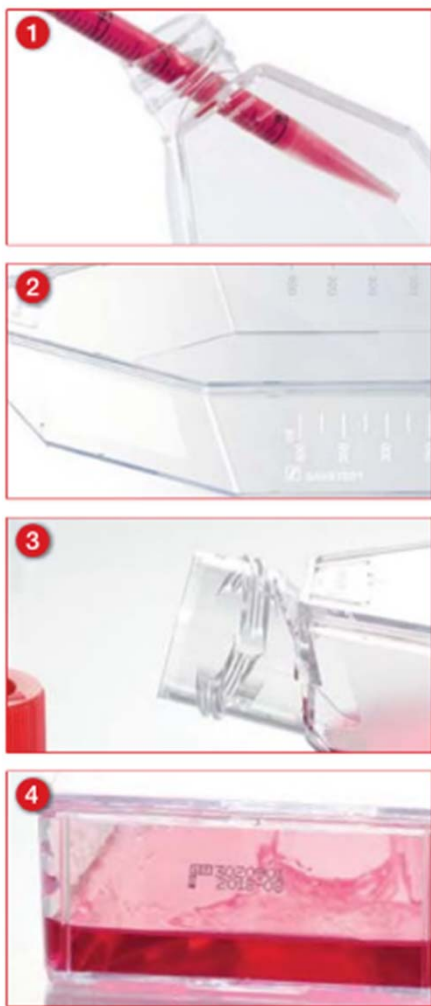
- 疏水表面: 適合懸浮型細胞



- 特殊修飾表面: 適合培養細胞球體



Cell Culture Flask



Product characteristics of cell culture flasks

- All corners accessible with serological pipettes and cell scrapers.
- Large labeling fields on both sides of neck and printed white and engraved graduation marks, to facilitate use of the products.
- High stability against overturning reduces the risk of contamination. In addition, the stacking edge allows flasks to be stored securely on top of each other.
- The optimized, canted flask neck and the anti-drip rim allow for easy titling of the medium, without the risk of contamination from medium spilling over.
- The lot.no. and expiration date are printed on each flask for easy traceability after removal from the package.
- All SARSTEDT cell culture flasks are available with free different growth surface and can be clearly identified by the colored lids.

Red= adherent cells
Yellow= difficult adherent cells
Green= suspension cells



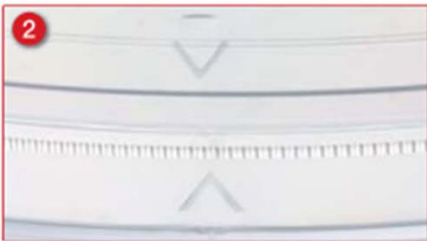
品號	品名	Color code	操作體積	包裝
SAR-83.3910.002-1CS	T-25, surface: Standard, Filter cap	■	7ml	10/Bag, 300/Case
SAR-83.3911.002-1CS	T-75, surface: Standard, Filter cap	■	21ml	5/Bag, 100/Case
SAR-83.3911.502-1CS	T-75, surface: Suspension, Filter cap	■	21ml	5/Bag, 100/Case
SAR-83.3911.302-1CS	T-75, surface: Cell+, Filter cap	■	21ml	5/Bag, 100/Case
SAR-83.3912.002-1CS	T-175, surface: Standard, Filter cap	■	50ml	5/Bag, 40/Case

Cell Culture Dish



Product characteristics cell culture dishes

- The SUREGrip is a raised, notched ring around the dish base that permits secure and convenient gripping of both parts of the dish, even when stacked.
- Clearly visible and tangible arrows on the cover and dish enable the two parts to be placed together correctly
- A continuous gas exchange and securely fitted lid are ensured by ventilation cams on the lid.
- Distinct stacking rings on the lid and base allow for secure stacking of several dishes.
- For cloning experiments. SARSTED offers 35mm and 60mm diameter dishes with a grid.
- For better traceability. Even after removal from the packaging each dish is labeled using the color code as well as the lot no. and expiration date.



品號	品名	Color code	操作體積	包裝單位
SAR-83.3901.300-1CS	60 x 15 mm, surface: Cell+	■	5ml	10/Bag, 500/Case
SAR-83.3902-1CS	100 x 20 mm, surface: Standard	■	13ml	10/Bag, 300/Case
SAR-83.3902.300-1CS	100 x 20 mm, surface: Cell+	■	13ml	10/Bag, 300/Case

Cell Culture

X-well



X-well 產品選擇指南

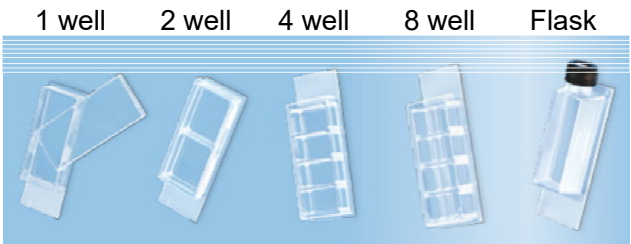


	X-well PCA detachable	X-well glass detachable	X-well coverglass	X-well lumox® detachable
底座材質 底座厚度	Polyolefin 塑膠 1.1mm	標準款玻璃底 1mm	超薄玻璃底 170um	超薄Polymer膜 50um
特色	- 比PS材質具有較低自體螢光與較高化學抗性 - 有標記書寫區 - 貼附型細胞	- 無自體螢光 - 高化學抗性 - 有標記書寫區 - 適合常規的固定與染色 - 適合長期保存	- 無自體螢光 - 高化學抗性 - 高影像解析度 - 無書寫區/不可拆 - 適合多種廣泛的染料	- 低自體螢光 - 高光線穿透度 - 可以通透氣體 - 適合長時間的細胞螢光觀察 - 敏感型細胞
	Well 與底座可拆	Well 與底座可拆	不可拆	Well 與底座可拆
應用	一般顯微鏡	一般顯微鏡	高解析度confocal 顯微鏡 倒立式顯微鏡觀察 (油鏡)	連續性的活細胞螢光 觀察與影像紀錄
適合放大	400X	400X	1000X	400X



X-well 產品選擇種類

Format	PCA	Glass	Coverglass	Lumox	表面積cm2	體積ml	包裝
1-well	94.6140.102	94.6170.102	94.6190.102	94.6150.101	9	4	6/96
2-well	94.6140.202	94.6170.202	94.6190.202	94.6150.201	4.4	2	6/96
4-well	94.6140.402	94.6170.402	94.6190.402	94.6150.401	1.9	1	6/96
8-well	94.6140.802	94.6170.802	94.6190.802	94.6150.801	0.8	0.5	6/96
Flask	94.6140.002	94.6170.002	94.6190.002		9	4	6/96



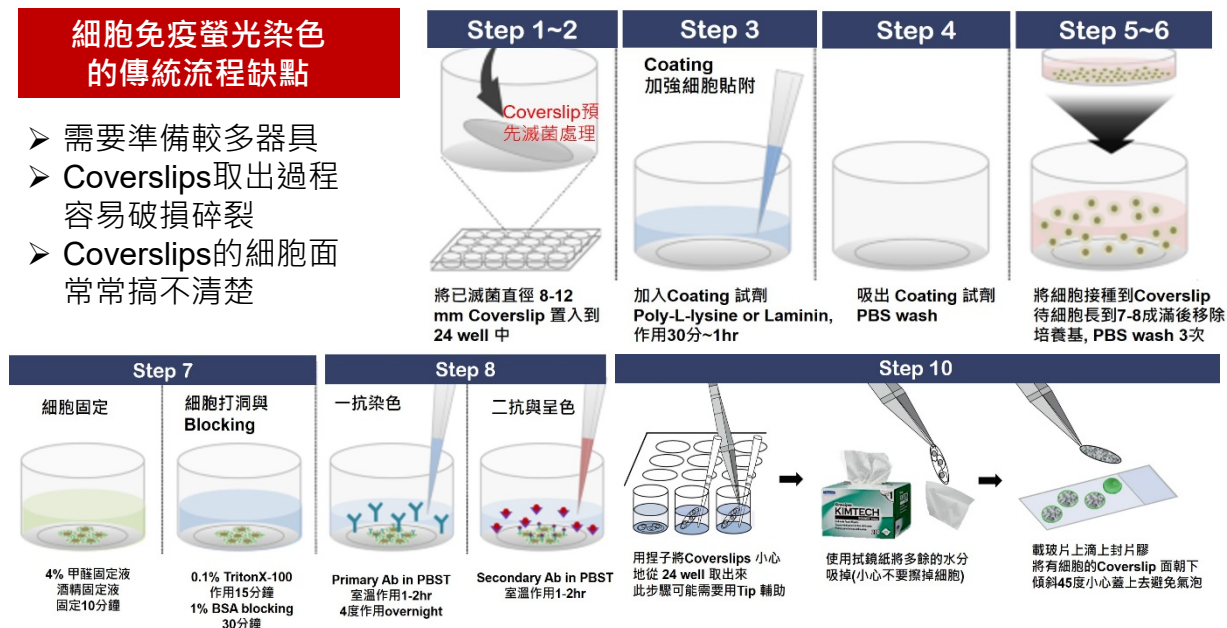


使用 X-well glass 輕輕鬆鬆從玻片上拆除 chamber 不留殘膠!!

- ✓ 無須額外的工具即可輕鬆的分離 底部的載玻片與chamber
- ✓ 分離後不會有殘膠殘留在玻片上
- ✓ 跟傳統IF做法相比, 可節省繁瑣的步驟與器材準備
- ✓ 縮短實驗操作時間與流程
- ✓ 大大節省培養基與抗體的體積用量
- ✓ 封片後可以長期保存

細胞免疫螢光染色的傳統流程缺點

- 需要準備較多器具
- Coverslips取出過程容易破損碎裂
- Coverslips的細胞面常常搞不清楚



	傳統法進行細胞免疫螢光染色	使用X-well 進行細胞免疫螢光染色
準備耗材	• 24 well plate一個 • Coverglass 玻片(事先滅菌) • 普通長方形載玻片(事先滅菌) • 鑷子	• X-well Chamber Slide 一個 材料簡單/步驟少/操作更容易
Coating 試劑	Poly-L-Lysine 或其他	Poly-L-Lysine 或其他
接種細胞	貼附型細胞	貼附型細胞
培養基消耗體積	每well 建議1ml (2-3天更換一次) 若是連續培養1週 需要3ml/well	每well 0.5ml /8-well (2-3天更換一次) 若是連續培養1週 只需要1.5ml/well
定期更換培養基	可以	可以
細胞固定液體積	0.5ml/well	200ul/well
抗體染色體積	0.5ml/well	200ul/well
封片步驟與技巧	需要使用捏子取出Coverglass 細胞面朝下進行封片(不好操作) 1. 不清楚細胞在哪一面 2. 捏子取出Coverglass 容易弄破	滴上封片液後可直接封片(簡單)

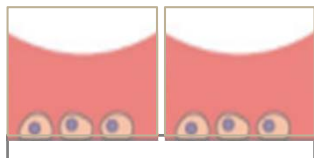
使用 X-well 進行神經細胞培養分化以及抗體染色鑑定的流程 All in One

X-well 進行表面Coating



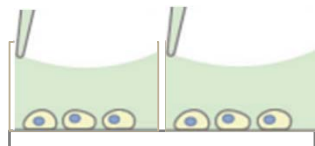
1. 8-well chamber slides 事先 coated with 20 $\mu\text{g/mL}$ laminin

細胞接種與分化培養 (14天)



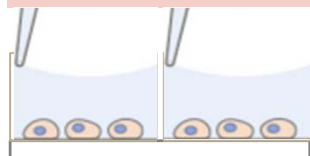
2. 每個 well 接種3萬顆細胞
SCC007 ReNcell™ CX Human Neural Progenitor Cell Line
培養在SCM005+EGF and FGF (0.5-0.75ml/per well)
3. 隔日更換為新鮮起始分化培養基
起始分化時需先移除FGF&EGF
之後每隔3天更換1次培養基
ReNcell™ NSC Maintenance Medium分化達2週後進行細胞固定與染色

細胞固定與細胞穿孔



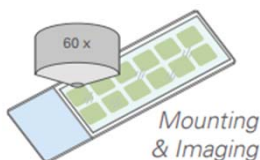
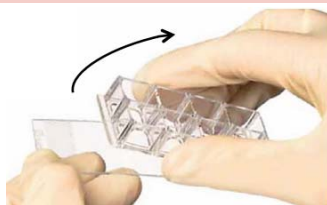
4. 從 well 內移除培養基, PBS wash 3次, 加入200ul 固定液固定10 min, 移除固定液並用 PBS wash, 加入 200ul 0.1% Triton X-100 作用10min, 移除 Buffer, PBS wash, 加 blocking buffer作用 30min

使用抗體進行細胞染色

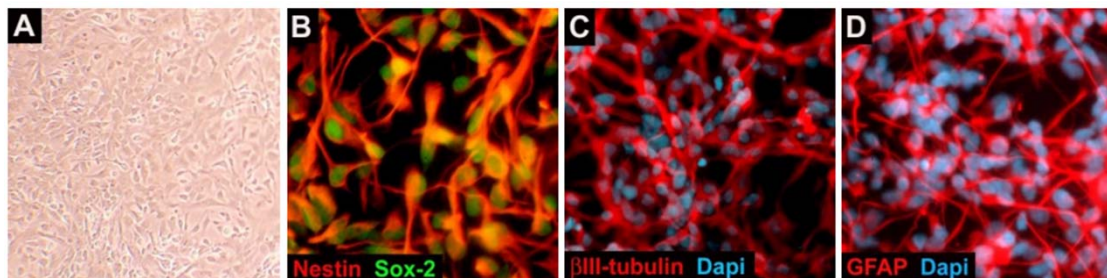


5. 移除blocking buffer, 加入 200ul Primary Ab 作用2hr (RT), PBS wash 3次, 加入 200ul Secondary Ab 作用2hr (RT避光), PBS wash 3次

移除Chamber, 滴上封片膠與封片, 顯微鏡觀察



6. 移除抗體 buffer, PBS wash 3次, 移除 Chamber 滴上封片膠, 封片後進行顯微鏡觀察



ReNcell™ CX cells (Millipore Cat. No. SCC007) are grown as monolayers (A) and express NSC markers, Nestin (B, red; Cat. No. MAB5326) and Sox-2 (B, green; AB5603). ReNcell™ CX cells are able to differentiate into neurons expressing beta III-tubulin (C; Cat. No. MAB1637) and glial cells expressing GFAP (D; Cat. No. AB5804).

Cell Culture Lumox®



Lumox® 透氣培養皿與多孔盤 SARSTEDT

Lumox® 系列 細胞培養產品擁有超薄透氣膜層。提供良好的透氣性和較短的擴散路徑以確保細胞擁有最佳氣體交換。該產品非常適合長時間進行活細胞的顯微鏡影像觀察與成像、或是電子顯微鏡觀察。

✓ **活組織培養**
體外皮膚組織培養

✓ **動物胚胎培養**
斑馬魚&果蠅

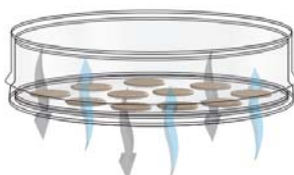
✓ **活細胞影像追蹤**
免疫細胞的移動追蹤

Cells simply grow better

傳統PS塑膠底
無法透氣



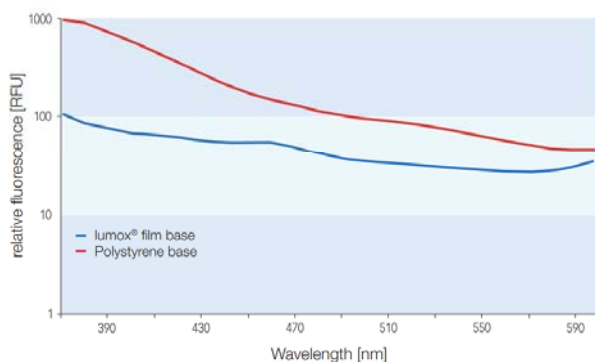
Lumox特殊材質透氣底
可以通透氣體細胞長更好



- Lumox® 材質為SARSTEDT專利研發的透氣塑料薄膜，細胞可以直接貼附其上無須額外Coating。薄膜可通透氣體卻不會透水。
- 超薄的厚度(50um)可應用於高解析度螢光顯微鏡，進行長時間的細胞影像觀察與拍照。

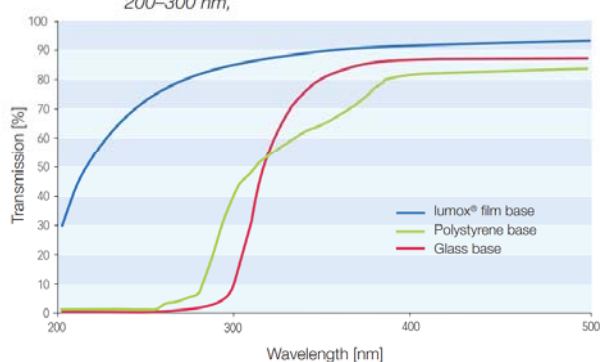
比起一般PS塑料有更低的自體螢光

Fig. 1 Fluorescence measurement of the lumox® film and the polystyrene base at 330 nm



光線的通透率優於玻璃以及PS塑料

Fig. 2 Light transmission measurement. Detection of low signals, particularly possible with wavelengths of 200–300 nm,



Lumox® Dish

- 設計氣體可通透性的培養皿底層
- Lumox base 底部為25um通透薄層
- 比傳統PS材質培養皿具有更低的自體螢光
- 3.5cm 與 5cm 兩款規格
- 適合貼附細胞與懸浮細胞兩款



品號	品名	適合細胞	高度mm	體積 ml	包裝
94.6077.333	Lumox dish 3.5cm	懸浮■	35/6	2.5	50
94.6077.331	Lumox dish 3.5cm	貼附■	35/6	2.5	50
94.6077.305	Lumox dish 5cm	懸浮■	50/12	5-10	50
94.6077.410	Lumox dish 5cm	貼附■	50/12	5-10	50

Lumox® plate

- 黑色裙邊與透明蓋的設計
- 底部僅為50um通透薄層
- 24 well, 96 well, 384 well 三款規格



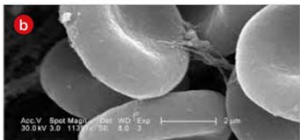
品號	品名	適合細胞	表面積mm ²	操作體積 ul	包裝
94.6000.014	Lumox 24 well	貼附■	190	500-1500	4
94.6110.024	Lumox 24 well	貼附■	190	500-1500	20
94.6000.024	Lumox 96 well	貼附■	34	25-340	4
94.6120.096	Lumox 96 well	貼附■	34	25-340	20
94.6000.034	Lumox 384 well	貼附■	11	10-130	4
94.6130.384	Lumox 384 well	貼附■	11	10-130	20



Fig1. shows that the lumox® can be cut out easily and quickly using a scalpel



Fig2. (a) shows an electron microscope. (b) shows red blood cells photographed with an electron microscope. The measurement scale bar represents 2 μ m.



(Lumox® Dish應用)



PROTOCOL

<https://doi.org/10.1038/s41596-020-00435-8>

 Check for updates

Labeling and tracking of immune cells in ex vivo human skin

Feline E. Dijkgraaf¹, Mireille Toebes¹, Mark Hoogenboezem², Marjolijn Mertz³, David W. Vredevoogd⁴, Tiago R. Matos⁴, Marcel B. M. Teunissen⁴, Rosalie M. Luiten⁴ and Ton N. Schumacher^{1,2}

該培養方式需將組織包埋在瓊脂糖中，使用振動切片機切片，固定並浸在培養基。此方法可用於腦組織、淋巴結組織和腫瘤組織等免疫細胞的追蹤上。而後將新鮮皮膚組織樣品置於 Lumox® 3.5cm 培養皿 (Sarstedt) 中，將暴露空氣的表皮面朝向透氣底部，真皮面朝上置放，其上再包覆一層 Filter 和 Geltrex 水凝膠，讓營養物質從培養基中被動擴散到組織內層。

Fig. 1 | Setup of the ex vivo imaging system for skin biopsies. **a**, Schematic overview of the ex vivo imaging setup. Note that a cross-section of the dish is shown to illustrate how the biopsies are placed on the gas-permeable membrane. In reality, the filter, Geltrex, and medium enclose the biopsies. **b**, Representative image of healthy human skin biopsies mounted in the ex vivo imaging dish.

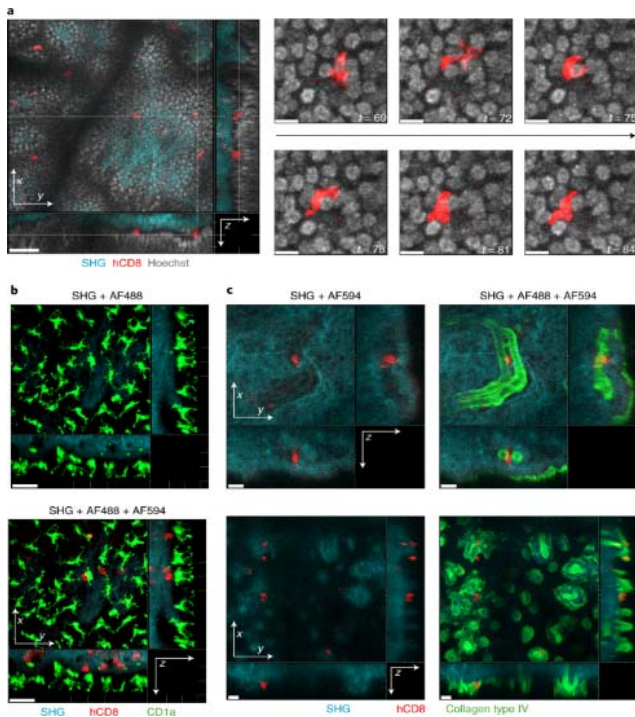
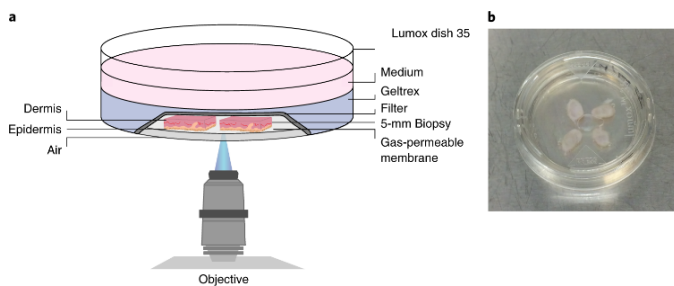


Table 1 | Timing of labeling and tracking of CD8⁺ T cells in ex vivo skin

Step	Action	Required time
(Optional) Box 1	Production, purification and labeling of nanobodies	5 d
1	Obtain fresh skin material	Variable
2	Obtain punch biopsies	0.5 h
3-13	Mount biopsies in ex vivo setup	1.5 h
14-15	Prepare staining	0.5 h
16	Rest and stain overnight	12 h
17-22	Wash and prepare for imaging	0.5 h
23	Time-lapse imaging ^a	4 h
24	Tracking analysis	>8 h

Schematic overview of the timing of the various phases of the protocol. First column indicates the relevant protocol steps, the second column indicates the action, and the third column indicates the time the action requires. *Note that time-lapse imaging should be performed after an overnight resting period and no later than 24 h of ex vivo culture.

Fig.2 Visualization of immune cells and structural components in ex vivo human skin using conventional staining reagents.

a, Left: section view of MP recording of ex vivo human skin showing collagen type I signal (SHG, blue) and staining with anti-hCD8-AF594 (red) and Hoechst 33342 (gray). Right: top view of CD8+ T cell migrating in between Hoechst+ epidermal skin cells.

b, Sectioning of MP recording of ex vivo human skin tissue showing collagen type I signal (SHG, blue) and staining with anti-CD1a-AF488 conventional antibody and anti-hCD8-AF594 (CD8+ T cells, red).

c, Section view showing two MP recordings (top and bottom) depicting collagen type I signal (SHG, blue) and staining with anti- α CD8-AF594 nanobody (red) and anti-collagen type IV-AF488 conventional antibody (green). Note that collagen type IV staining demarks the basement membrane and dermal vessels. Dataset in c (bottom) is described in Fig. 4c (bottom) in and Supplementary Video 14-III in ref. 22.

3D Cell Culture Biofloat®



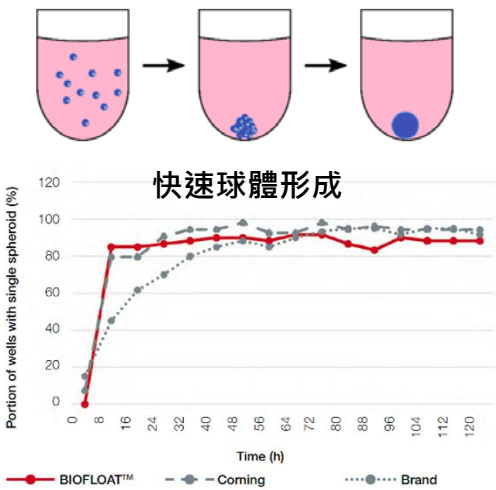
SAR-83.3925.400-BAG

Biofloat® Plate

3D細胞球體的培養與藥物篩應用

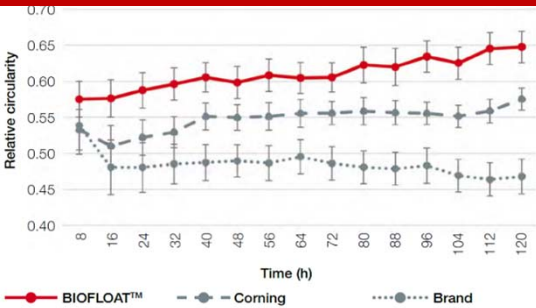
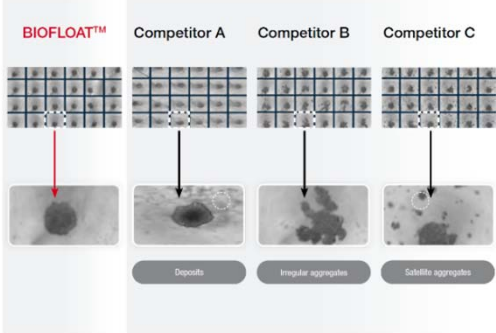
- Features:**
- Round bottom 96 well transparent plate
 - Physical treatment with inert polymer coating.

- Advantages:**
- Rapid spheroid formation
 - High circularity and reproducibility
 - Reliability with even challenging cell types
 - Washing and scratch resistance.

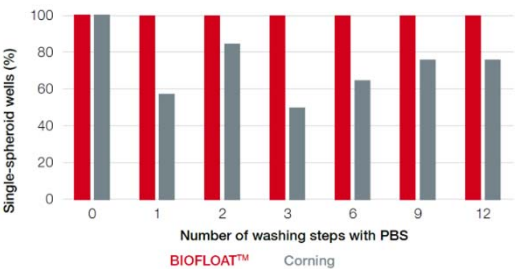
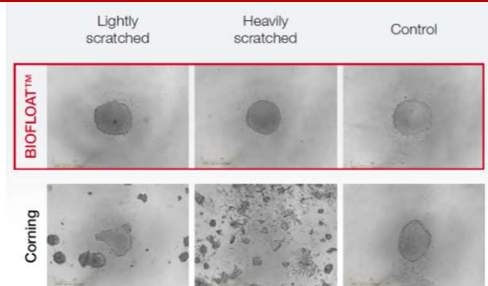


Depending on the cell type/cell line spheroid formation is typically accomplished in 2 to 24 hours. Formation of uniform spheroids is quicker than on most anti-adhesive, cell repellent surfaces

比其他品牌更容易形成大小顆均一的球體；提供更高實驗數據再現性

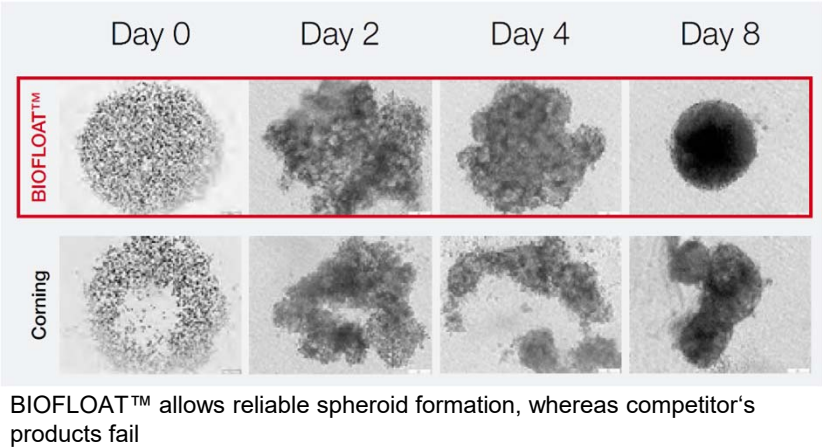


特殊配方塗層耐；耐受多次PBS沖洗。更換培養基不用擔心球體受到機械力影響



Drug-induced liver toxicity (DILI) 藥物引發肝損傷之研究應用

藥物引起的肝損傷是臨床常見的併發症，在藥物開發的早期，排除相關風險是非常重要的一環。傳統的2D藥物毒理試驗並不太可靠，因此近年來多半採取3D模型來進行試驗。原代的肝細胞球在早期藥物開發階段是一個較具經濟效益的體外3D細胞培養模組，但原代肝臟細胞球本身比較難以培養與難以成球的特性。



Application:

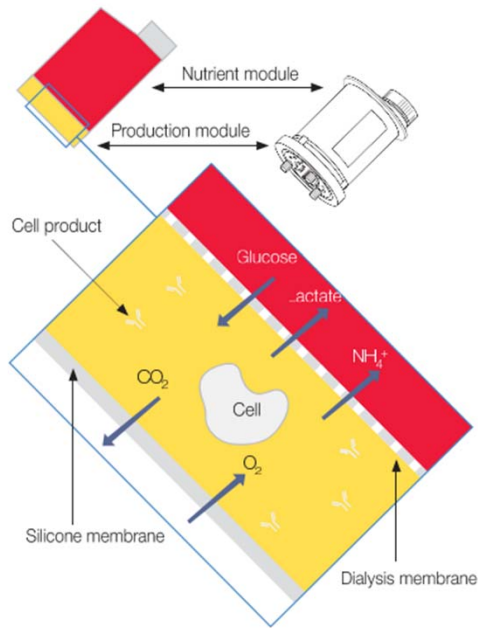
- CRO/pharmaceuticals who carry out a large proportion of preclinical studies or toxicological investigations;
- Biomedical research customers, university or other research laboratories who already operate classical 2-D cell culture are also potential customer of this product.

BIOFLOAT™ growth references



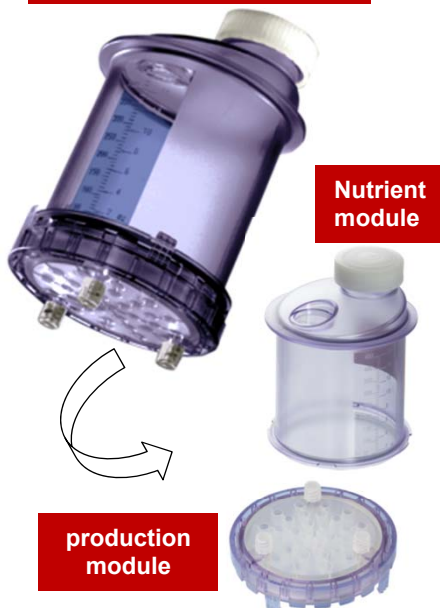
Cell Name			
3T3 Mouse fibroblast	FAMPAC Human pancreatic adenocarcinoma	HepG2 Human Hepatocellular Carcinoma	Mia-Paca Human pancreatic cancer cell line
A431 Human squamous cancer cell line	H1975 Human Lung adenocarcinoma	HT-29 Human colon cancer cell	Panc1 Human pancreatic cancer cell line
CaCo-2 Human colorectal adenocarcinoma	H2228 Human Lung adenocarcinoma	huART Immortalized endothelial cell	Panc39 Human pancreatic cancer cell line
Capan-1 Human pancreatic adenocarcinoma	H3122 Human Lung adenocarcinoma	HuOB Immortalized osteoblasts	PRH with RHStec Hepatic stellate cells/Ito cells
CHO Chinese hamster ovary cell line	HCC1433 Human breast cancer cell line	HuVEC Human venous endothelials	PRH+HHStec Hepatic stellate cells/Ito cells
D492 Human breast epithelial cell line	HCT-116 Human colorectal carcinoma	iPSC-Gata6 iPSC-derived hepatocytes	RPMI B lymphocyte cell line
D492HER Tumorigenic breast epithelial stem cell line	hDPSC Human Dental Pulp Stem Cells	MCF10A Human breast cancer cell line	SFFV2 Immortalized astrocytes
DAN-G Human pancreas carcinoma	hDPSC+Panc1 Human pancreatic cancer cell line	MCF-7 Human breast cancer cell line	B16 Melanoma cell line
ESCs Embryonic stem cells	HEK293 Human Embryonic Kidney Cells	MDA-MB231 Human breast cancer cell line	• Differentiated fatty cell organoids from iPSC • Endometrial organoids from detached primary cells

Protein Production Bioreactor



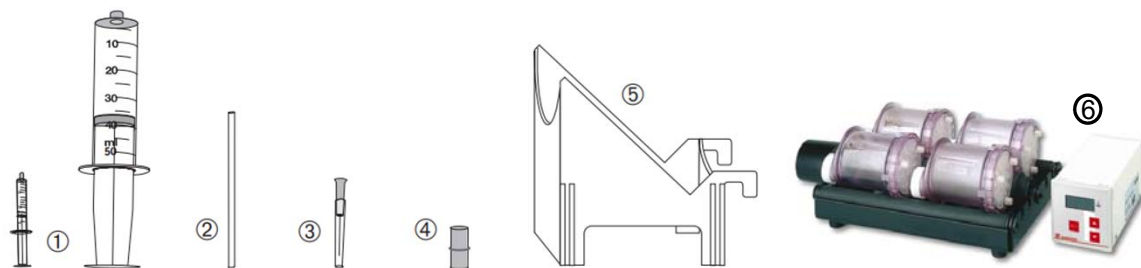
MiniPREM® 生物反應器藉由透析膜分為生產區 Production module (Cell Seeding) 與營養區 Nutrient module (加培養基) 兩部分。細胞生產區 (Production module) 的一側為矽膠膜, 可以通透氧氣與二氧化碳。另一側是透析膜, 其截留分子量大小為12.5kDa, 因此可以防止細胞與細胞所產生的蛋白質進入營養區, 但是細胞的代謝廢物可經由透析膜排出到營養區。生產區可供35ml與50ml的懸浮細胞液的培養, 營養區為固定400ml的培養基容量。

classic Bioreactor



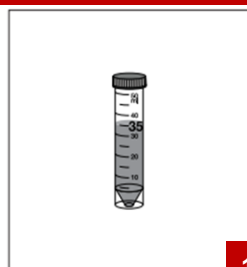
產品應用說明

- 專為高密度細胞或是生產高濃度蛋白所設計的懸浮細胞培養生物反應器
- 可培養 10^7 /ml高密度之細胞, 或是生產高達mg/ml 的蛋白
- 簡易操作的2腔室設計生物反應器
- 適合細胞株: 融合瘤細胞, 昆蟲細胞, 植物細胞, 哺乳動物細胞的懸浮培養
- 應用: 製備病毒顆粒、生產重組蛋白質與抗體



型號	品名	包裝
94.6001.059	miniPERM classic Bioreactor, sterile	2
94.6001.055	miniPERM class production module, sterile	4
94.6001.153	Nutrient module for miniPERM, autoclavable (可滅菌重複使用)	4
94.6077.121	miniPERM HDC50 Bioreactor, sterile	2
94.6077.017	miniPERM HDC50 production module, sterile	4
94.6001.094	Start-up support kit (包含下列1-5項產品)	1
	Single use 50ml Lock syringe, sterile ①	8
	Single use 2ml Lock syringe, sterile ①	20
	Filling tube 5", Luber, sterile ②	8
	Luer syringer needle, 25G X5/8", sterile ③	20
	Septum port, sterile ④	6
	Standard for miniPERM ⑤	1
94.6001.061	Universal Turning Device 115/230V ⑥	1

細胞懸浮液與培養基加樣流程



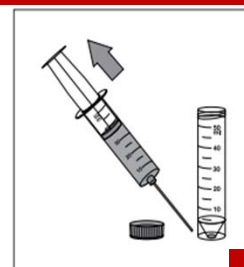
1 準備35ml細胞懸浮液
(建議細胞密度: $10^5/\text{ml}$)



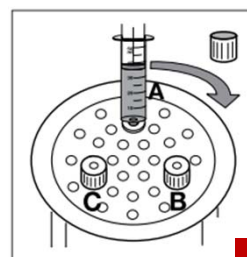
2 拆開已滅菌已經組裝完
成的 MiniPERM 反應器



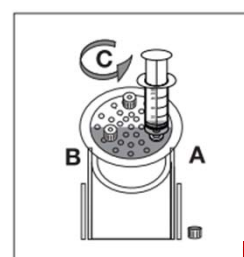
3 將 MiniPERM 反應器
放置在固定架上



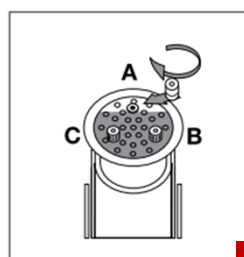
4 使用50ml 無菌的針
筒吸取細胞懸浮液



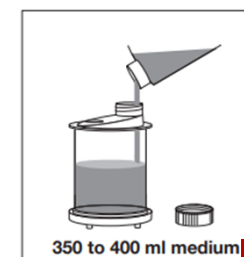
5 旋開圖中A閥位置的蓋
子, 將針筒接上A閥固
定, 請避免針筒整個填
滿液體



6 旋轉瓶身90度, 並將C閥
旋鬆, 然後慢慢地將針筒
內的細胞注入, 過程中請
盡量避免氣泡產生



7 培養基注入完畢將C閥
旋緊關閉, 並將瓶身轉
回到原本的位置



8 打開培養基槽的蓋子,
倒入350-400ml培養
基, 然後將蓋子鎖緊

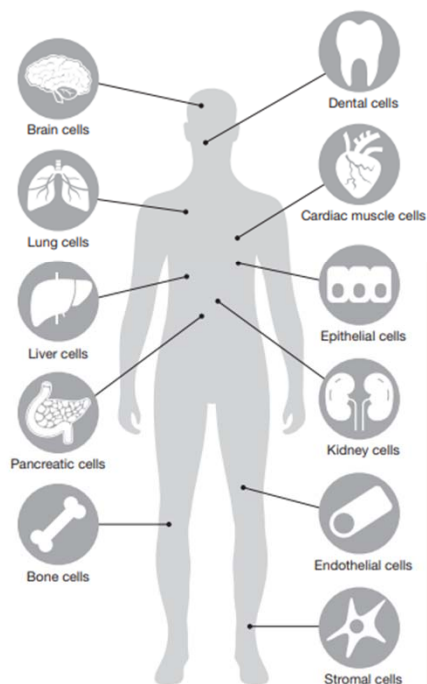
SPHEROID CULTURES WITH BIOFLOAT™

- ✓ **Rounder:** New, highly anti-adhesive surface coating for easy cultivation
- ✓ **Faster:** Uniform spheroids have been shown to form more rapidly than on most anti-adhesive, cell-repellent surfaces
- ✓ **More reliable:** Evenly round spheroids—usually one per well (> 95 %)—ensure a high reproducibility of your results



SARSTEDT

BIOFLOAT™ solves your challenges
in the area of spheroid cultures



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