Alvetex®

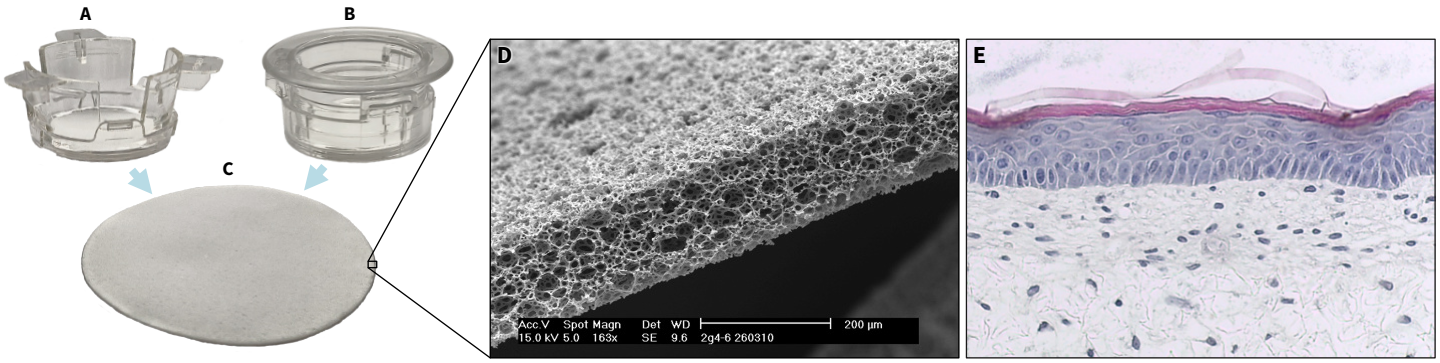
Enabling Technology for 3D Cell Culture and Bioengineered Tissue Models

alvetex
A REPROCELL BRAND

Alvetex is a polystyrene scaffold designed for 3D cell culture and tissue bioengineering.

The Alvetex membrane and its associated bespoke plasticware is an innovative and novel solution that enables researchers and product developers to undertake new ways of culturing cells and tissues *in vitro*.

Alvetex is a market leading scaffold product. Not only does Alvetex enable simple and routine 3D cell culture, but it also empowers users to bioengineer tissue constructs, creating unique models of human tissues. This opportunity can improve the predictive accuracy of *in vitro* models, that in turn decreases costs and enhances efficiency of bringing therapeutic and cosmetic products to market.



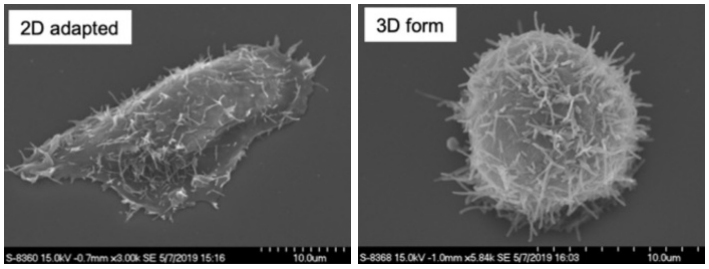
Above: A: Alvetex 6 well insert containing Alvetex Scaffold (AVP004). **B.** Alvetex Advanced 15 mm modular well insert containing Alvetex Scaffold (AVP022). **C:** Alvetex Scaffold disc, 200 µm thickness. **D:** Scanning Electron micrograph of Alvetex Scaffold, transverse section. **E:** histological image of a full-thickness human skin model comprised of fibroblasts growing within Alvetex Scaffold, and laying down extracellular matrix within Alvetex Scaffold; with keratinocytes growning and stratifying on the surface of the scaffold). This model forms the basis of our REPROSKIN™ bioenginneered 3D skin assays.

Genuine 3D cell culture, Simply and Routinely

In conventional *in vitro* 2D cell culture, human and other mammalian cells are forced to adopt a flattened morphology and grow in a monolayer. Consequently, the cells do not grow and function in a realistic fashion. The result is inaccurate and misleading data, and a misunderstanding of complex biological phenomena. This has major implications for research and discovery.

Alvetex adds back the third dimension, eliminating these stresses and artificial responses. Cells grow and divide to occupy the 3D space, maintaining their natural shape and forming complex interactions with one another in a manner that closely mimics normal growth in tissues.

The Alvetex membrane is supplied in a broad range of highly configurable polystyrene plasticware to support a wide variety of cell culture approaches, assays, visualisation and histology techniques, and downstream applications.



Above: Electron microscope images showing how a cell deforms to adapt to a 2D tissue culture environment, versus how a cell appears in Alvetex 3D cell culture.

Discover more: The Science of Alvetex

https://www.reprocell.com/alvetex/the-science-of-alvetex

www.reprocell.com

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Alvetex Plasticware Ranges

There are currently two ranges of Alvetex plasticware (bespoke plasticware containing Alvetex membrane).

Alvetex 3D Cell Culture Systems:

- A platform for routine 3D cell culture, designed for cell biologists who want to move beyond standard 2D monolayer cell cultures to 3D.
- Designed for routine mammalian and human 3D cell culture and basic co-culture models.
- Also suited for labs transitioning to 3D without full tissue engineering complexity.

Alvetex Advanced 3D Tissue Bioengineering System:

- Advanced platform for 3D tissue bioengineering with multiple cell types.
- Designed for building organotypic tissue models (e.g., skin, mucosa, barrier tissue).
- Designed for Pharmaceutical / cosmetic R&D teams that need reproducible models for barrier-function measurements (TEER, water loss, permeability), topical application, and device/tissue interface studies.

Comparing Alvetex Plasticware Systems

Features	Alvetex 3D Cell Culture Systems	Alvetex Advanced Tissue Bioengineering System
Summary	Alvetex membrane (polystyrene scaffold, 200 µm thick, >90% porosity) presented in multi well culture plates or bespoke inserts	Alvetex membrane (polystyrene scaffold, 200 µm thick, >90% porosity) integrated in a more complex insert with modular handles and deep (high capacity) media plates
Purpose	Routine 3D cell culture (mono- and co-culture)	Advanced 3D tissue bioengineering
Primary applications	Basic 3D cell culture, co-culture, functional studies, assays	Tissue engineering (skin, mucosa, barrier tissue), device & cosmetic testing, complex *in vitro* tissue disease models
Testing/ assays (examples)	MTS, MTT, XTT	TEER, clinical devices, skin barrier permeability
Target audience(s)	Academic labs, cell biologists, toxicity/ metabolism labs, stem cell/ tumor labs.	Translational R&D, pharma, cosmetic industry, tissue-engineering labs, high-throughput barrier assay users.
Alvetex membrane	Alvetex Scaffold (in plates and inserts), and Alvetex Strata (in inserts). Mammalian cells grow within Alvetex Scaffold or on the surface of Alvetex strata.	Alvetex Scaffold only.
Cell morphology and function	Cells maintain more *in vivo*-like morphology, with improved viability and function compared to 2D cell culture.	Applies these benefits into tissue models.
Plasticware formats	• Multi well plates (12, 24, & 96 well). • Inserts (for 6-well, 12-well, & 24-well plates).	Advanced 15mm modular inserts, requiring holder or handles (low, medium, high) for supporting over bespoke deep 6-well or single well plates.
Auxiliary plasticware	• Well insert holder and deep Petri dish for long term cultures. • Perfusion plate for dynamic circulation and perfusion of cultire media.	Advanced deep 6 well plates and (shared high capacity) single well plates can have uses beyond their original purpose within the Alvetex Advanced Tissue Bioengineering System.

Alvetex®

3D Cell Culture Systems

Alvetex 3D Cell Culture Systems are built around Alvetex, the highly-porous polystyrene scaffold membrane (200 µm thick, >90 % porosity).

Designed for routine 3D cell culture, Alvetex has been widely adopted by both academic researchers and pharmaceutical and biotech compenies for studying human and mammalian cell behavior in a more physiologically relevant environment *in vitro*.

The Alvetex membrane and its associated bespoke plasticware make 3D cell culture routine in the laboratory, and easy to migrate to for scientists who are familiar with 2D cell culture.

Why Alvetex 3D Cell Culture?

- **Natural cell morphology:** In 2D, cells are forced to flatten unnaturally, altering their behaviour and gene expression. Alvetex's 3D scaffold eliminates these stresses and the artificial responses caused, allowing cells to maintain their *in vivo*-like architecture.
- **Complex cell interactions:** In Alvetex, cells can interact in all three dimensions, forming tissue-like structures and producing extracellular matrix (ECM).
- **Compatibility and ease of use:** Alvetex is compatible with the same plasticware, same culture media, same cell visualisation techniques, same cell based assays, and same downstream applications as traditional 2D cell culture — with the results being much more comparable to cells grown in 3D *in vivo*.

Typical applications of Alvetex 3D cell culture systems include basic cell biology, drug metabolism/toxicity screening, stem cell differentiation, tumour-cell biology in 3D, and simple co-culture models.

There are two basic formats of Alvetex 3D cell culture systems: Alvetex discs positioned on the floor of multi-well plates; and Alvetex discs held in well inserts that are suspended from the top of the well. Alvetex well inserts can also be used in the Alvetex Perfusion Plate for perfused 3D cell culture.

Cells grown within **Alvetex Scaffold** or on top of **Alvetex Strata** maintain a true 3D architecture rather than deform and flatten onto a 2D surface.

All Alvetex products come in gamma sterilized packs with a very long shelf life — as long as the sterile pack remains unopened.

Alvetex 3D Cell Culture Systems

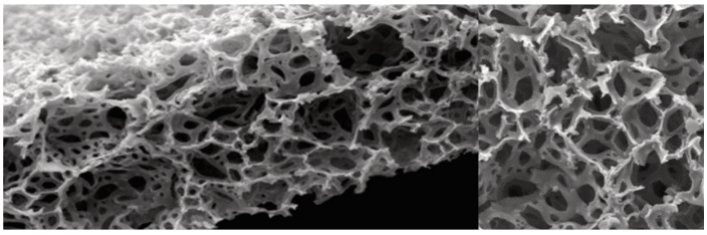
https://www.reprocell.com/product-catalog/alvetex-3d-cell-culture-systems

Alvetex membrane formats

The Alvetex membrane is currently available in two types: Alvetex Scaffold and Alvetex Strata. Both materials are presented as 200 µm thick membranes of highly porous cross-linked polystyrene. The difference is in their fine structure and architecture.

Alvetex Scaffold membrane

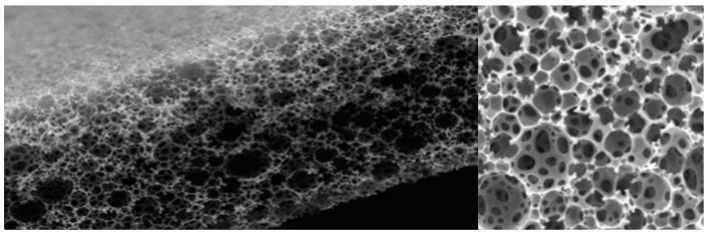
Primarily designed for three dimensional culture of dissociated mammalian cells within the scaffold, forming three dimensional associations as they propagate and migrate.



Above: Scanning electron microscope image of Alvetex Scaffold, to highlight its porous structure. **A**: a 200 µm thick Alvetex Scaffold disc. **B**: Close up of Alvetex Scaffold voids with dimensions of approximately 42 µm in diameter and interconnects of approximately 13 µm in diameter.

Alvetex Strata membrane

Primarily designed to support the growth of cells and intact tissues on the surface of the membrane.



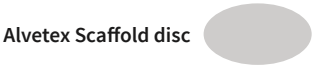
Above: Scanning electron microscope image of Alvetex Strata. **C**: a 200 µm thick Alvetex Strata disc. **D**: Close up of Alvetex Strata voids with dimensions of approximately 15 µm in diameter and interconnects of approximately 5 µm in diameter.

Multiwell plate formats: Alvetex Scaffold

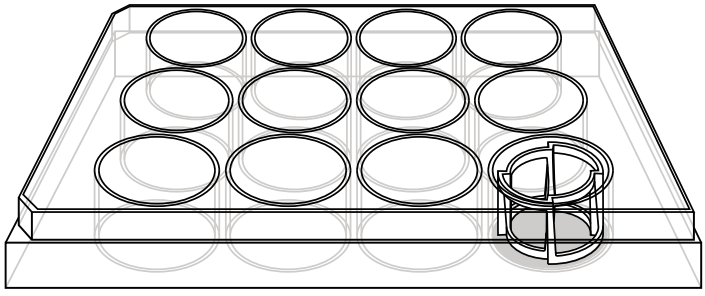
Alvetex Scaffold 12 well plate

Comprised of a single loose disc of Alvetex Scaffold and a polystyrene clip in each well of a 12 well plate. The clip holds the disc in position during transit and use, and can easily be removed for access to the Alvetex Scaffold and cells grown in 3D culture.

The 12 well plate format, a simple presentation of Alvetex Scaffold technology, is primarily suitable for short term culture experiments where the medium is replaced every 1-2 days.



12 well plate



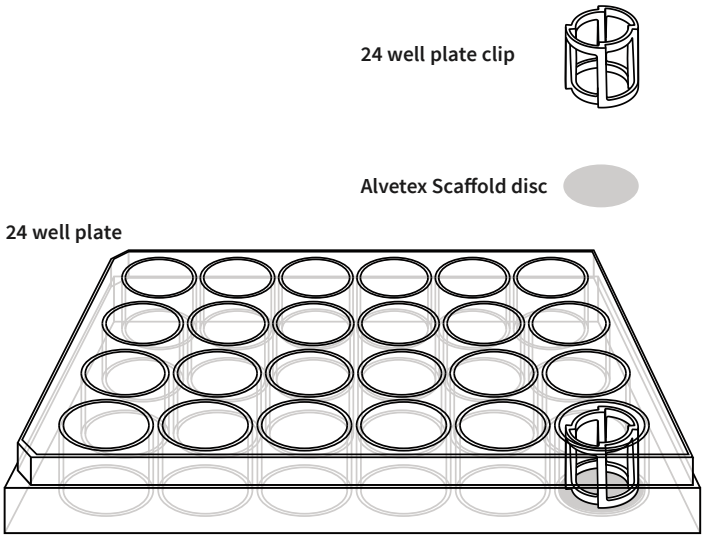
Product Name	Catalog Number	Presentation
Alvetex® Scaffold 12 well plate (with lid)	AVP002-2 AVP002-10 AVP002-80	2 × 12 well plates 10 × 12 well plates 80 × 12 well plates

Units are individually sterile blister packed.

Alvetex Scaffold 24 well plate

Comprised of a single loose disc of Alvetex Scaffold and a polystyrene clip in each well of a 24 well plate. The clip holds the disc in position during transit and use, and can easily be removed for access to the Alvetex Scaffold and cells grown in 3D culture.

The 24 well plate format, a simple presentation of Alvetex Scaffold technology, is primarily suitable for short term culture experiments where the medium is replaced every 1-2 days.



Product Name	Catalog Number	Presentation
Alvetex® Scaffold 24 well plate (with lid)	AVP006-2 AVP006-10 AVP006-80	2 × 24 well plates 10 × 24 well plates 80 × 24 well plates

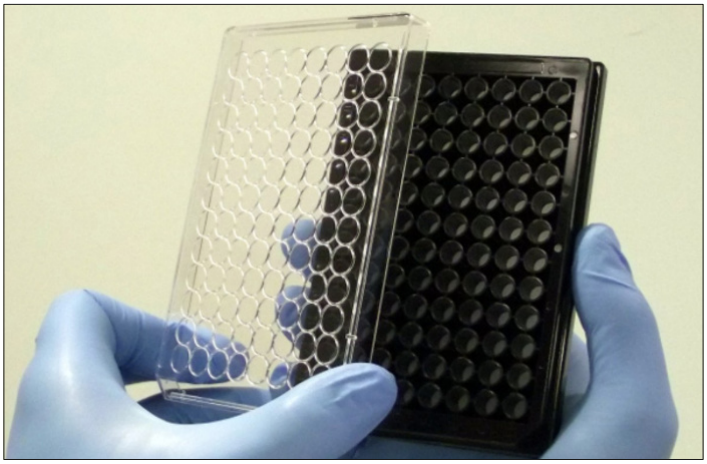
Units are individually sterile blister packed.

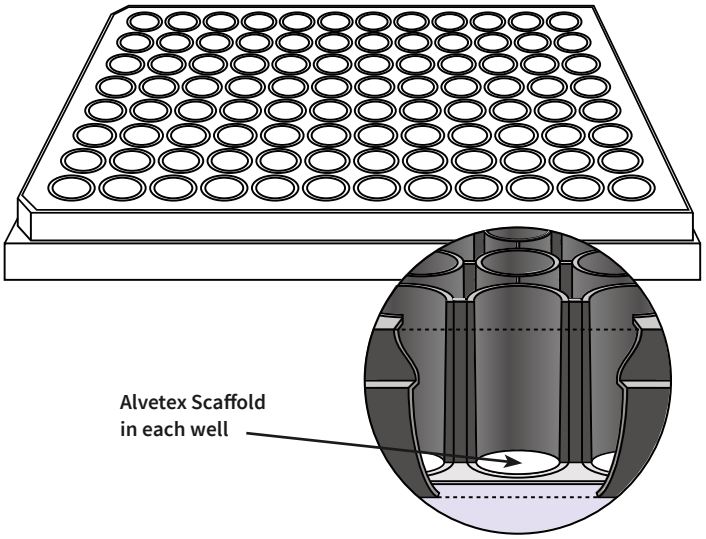
Alvetex Scaffold 96 well plate

Comprised of a black 96 well plate, clear plastic base, with Alvetex Scaffold at the bottom of each well. The Alvetex Scaffold has been heat welded to the base of the wells in a process which does not alter its physical structure.

Cells growing in 3D are exposed to culture medium from above only, and therefore predominantly reside in the top portion of scaffold.

Alvetex Scaffold 96 well plate technology is compatible with a wide range of *in vitro* cell viability assays.





Product Name	Catalog Number	Presentation
Alvetex® Scaffold 96 well plate (with lid)	AVP009-2 AVP009-10 AVP009-80	2 × 96 well plates 10 × 96 well plates 80 × 96 well plates

Units are individually sterile blister packed.

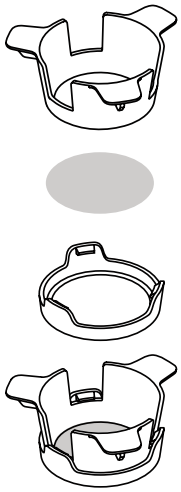
Well insert formats: Alvetex Scaffold / Alvetex Strata

Alvetex Scaffold / Alvetex Strata 6 well insert

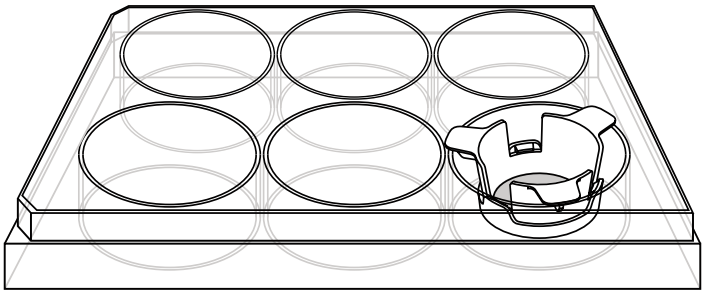
Comprised of discs of either Alvetex Scaffold or Alvetex Strata in individually sealed polystyrene inserts, designed to fit into most 6 well, 12 well and 24 well plates.

6 well inserts and 12 well inserts (when their extender wings haven't been snapped off) can also be suspended in a deep Petri dish using our custom-made Alvetex Well Insert Holder (see product AVP015, sold separately).

The presentation of Alvetex in well insert formats is versatile, enabling long term 3D culture as cells can receive nutrients from media above and below the membrane, sustaining optimal 3D cell growth.



6 well plate (not included)

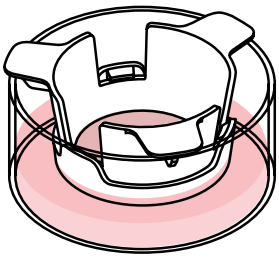


Product Name	Catalog Number	Presentation
Alvetex® Scaffold 6 well inserts	AVP004-12 AVP004-48 AVP004-96	12 × inserts 48 × inserts 96 × inserts
Alvetex® Strata 6 well inserts	STP004-12 STP004-48 STP004-96	12 × inserts 48 × inserts 96 × inserts

Well inserts are individually sterile blister packed.

Alvetex well inserts enable three different media fill options

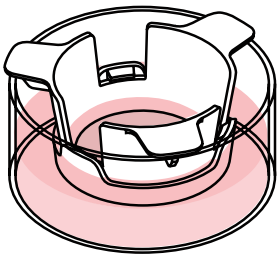
1



Media in contact from below only

This enables 3D growth at the air/liquid interface.

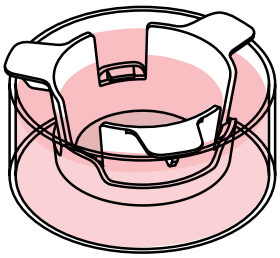
2



Media in contact above and below.

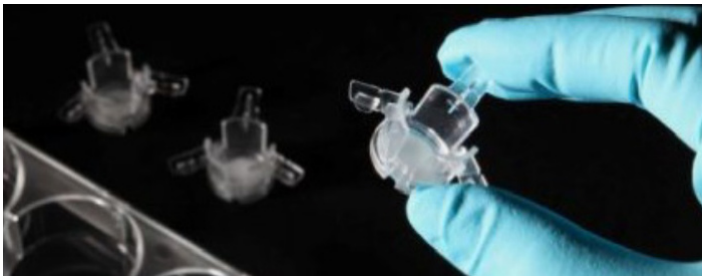
Independent compartments enable 3D growth with two different media constituents.

3



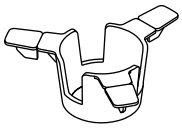
Media in contact above and below.

Interconnected compartments enable optimal conditions for maximising cell growth and increased viability.



Alvetex Scaffold / Alvetex Strata 12 well insert

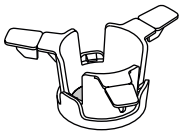
12 well insert body



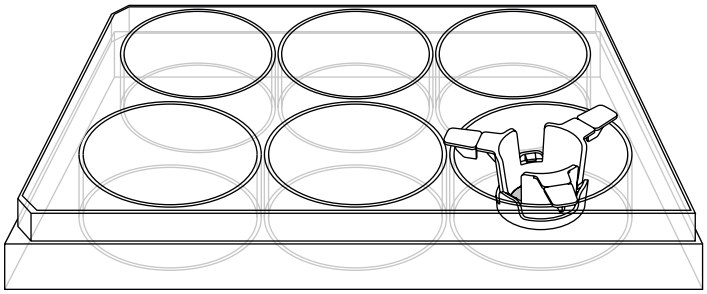
Alvetex disc
(Scaffold or Strata)

12 well insert base

12 well insert,
assembled

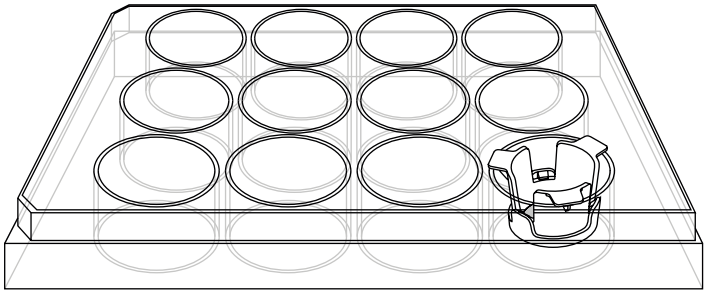


6 well plate (not included)



Assembled 12 well
insert, with extender
wings snapped off

12 well plate (not included)



Product Name	Catalog Number	Presentation
Alvetex® Scaffold 12 well inserts	AVP005-12 AVP005-48 AVP005-96	12 × inserts 48 × inserts 96 × inserts
Alvetex® Strata 12 well inserts	STP005-12 STP005-48 STP005-96	12 × inserts 48 × inserts 96 × inserts

Alvetex Scaffold 24 well insert

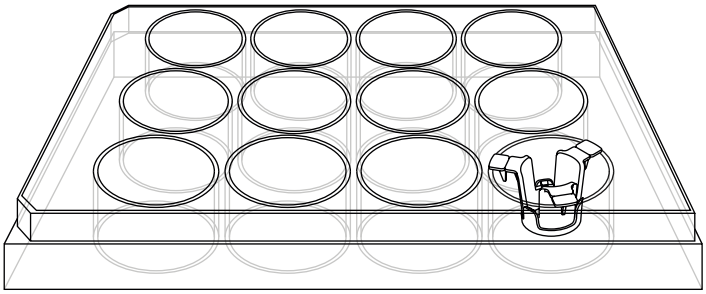
24 well insert body

Alvetex Scaffold disc

24 well insert base

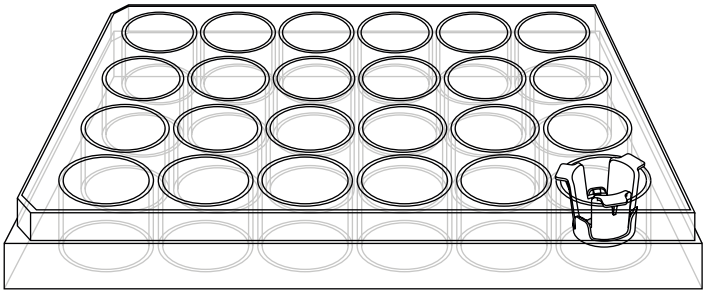
24 well insert,
assembled

12 well plate (included)



Assembled 24 well
insert, with extender
wings snapped off

24 well plate (not included)



Product Name	Catalog Number	Presentation
Alvetex® Scaffold 24 well inserts	AVP012-12 AVP012-48 AVP012-96	12 × inserts 48 × inserts 96 × inserts

12 well inserts (AVP005) are individually sterile blister packed.

24 well inserts (AVP012) are sterile blister packed in units of 12 within a 12 well plate.

Alvetex Tools for 3D Cell Culture

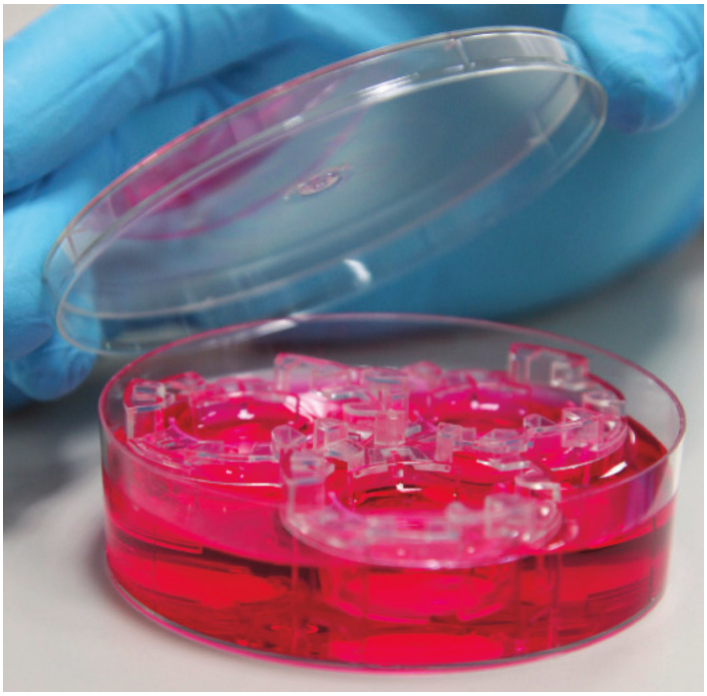
Alvetex Well Insert Holder and Deep Petri Dish

Comprised of a single well insert holder in a deep Petri dish with lid. The well insert holder is capable of housing up to three Alvetex well inserts (either 6 or 12 well inserts). The Petri dish itself is not tissue culture treated.

The Alvetex Well Insert Holder and Deep Petri Dish enables users to grow their 3D cultures in larger volumes of media compared to an ordinary multiwell plate, facilitating fewer media changes. Capable of sustaining long term 3D culture experiments (3-4 weeks).

The well insert can be positioned at three different levels in the insert holder: high, medium and low. This feature allows cultures to be raised to the air liquid interface by moving the insert to a different level within the same holder.

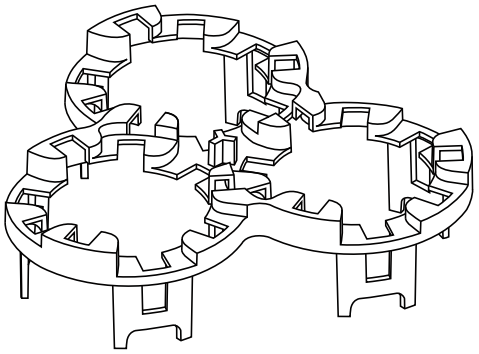
Positioning the well inserts at different levels may also be used to conserve expensive media or allow for increasing media volumes for demanding cell types over the course of a long term experiment.



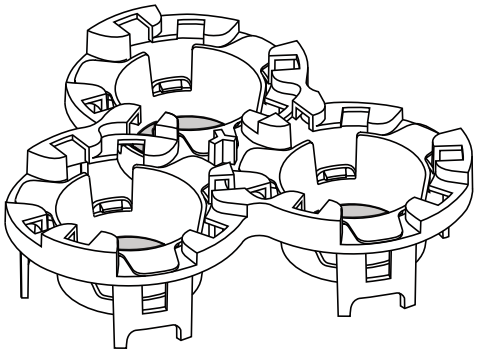
Product Name	Catalog Number	Presentation
Alvetex® Well Insert Holder and Deep Petri Dish (with lid)	AVP015-2 AVP015-10	2 units 10 units

Units are individually sterile blister packed.

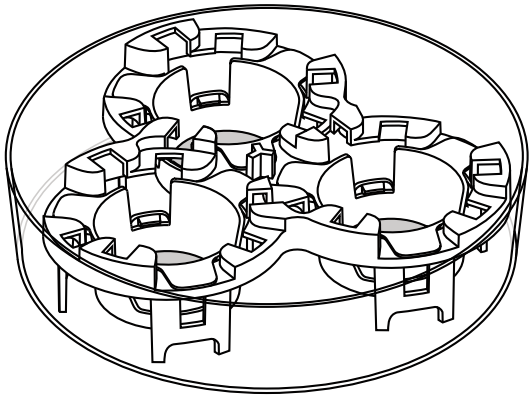
Well insert holder



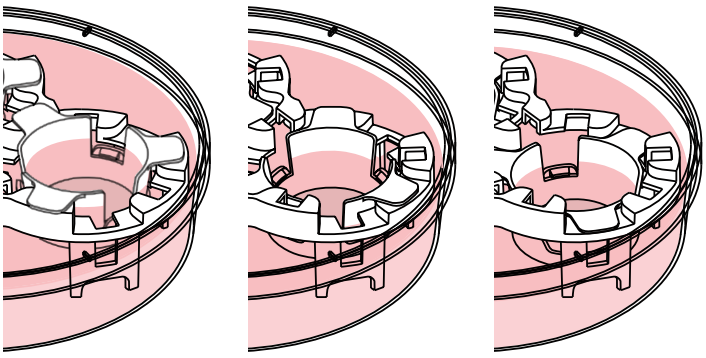
Example: Well insert holder with 6 well inserts in lowest position



Fitting in deep Petri dish



Well inserts at different holder levels



Well insert on upper level

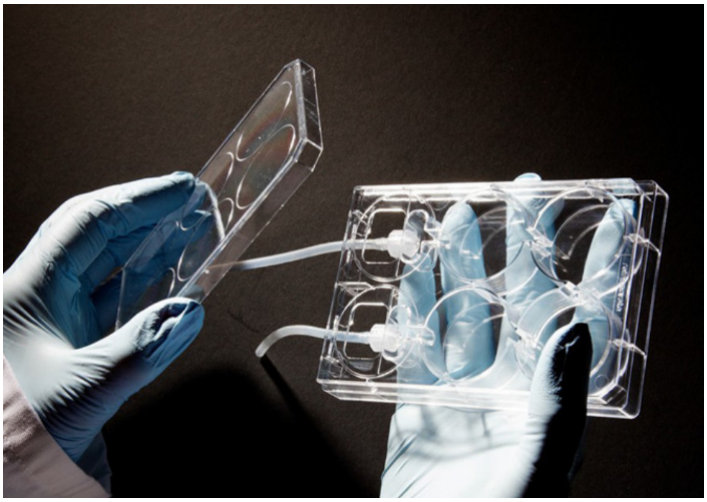
Well insert on middle level

Well insert on lower level

Alvetex Perfusion Plate

This product allows scientists to create cell based models that are another step closer to the environment experienced by cells and tissue *in vivo*. The systems can also be used to create complex co-cultures, multi-organ systems and to study paracrine effects.

Each unit contains an Alvetex Perfusion Plate with a lid and two Luer locks.

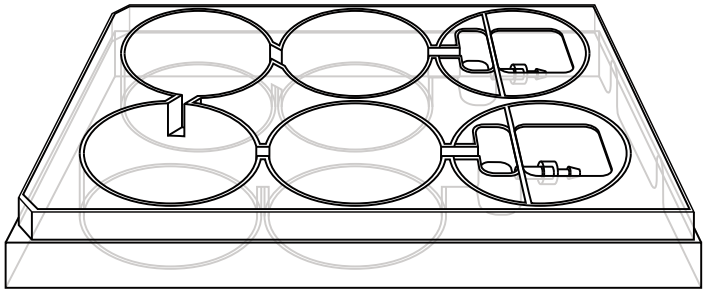


Product Name	Catalog Number	Presentation
Alvetex® Perfusion Plate (with lid and Luer locks)	AVP011-2 AVP012-10	2 units 10 units

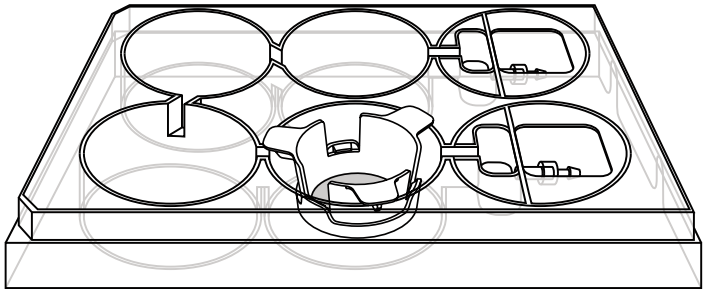
Units are individually sterile blister packed.

Note: pump and tubing is not supplied.

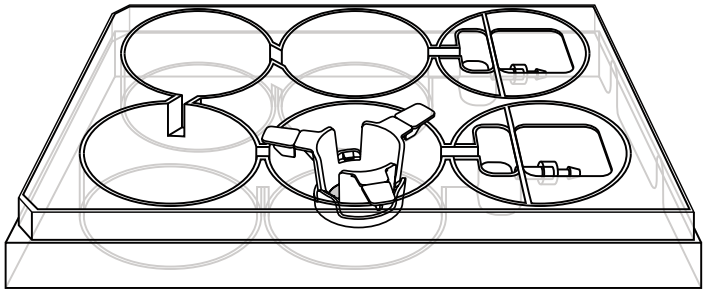
Above: Alvetex Perfusion Plate showing 4 × Alvetex 12 Well Inserts in position (example).



Alvetex Perfusion Plate (with Luer locks)



Example: Alvetex Perfusion Plate showing an Alvetex 6 Well Insert in position



Example: Alvetex Perfusion Plate showing an Alvetex 12 Well Insert in position

Alvetex Kits for 3D Cell Culture

Product Name	Catalog Number	Presentation
Alvetex® Scaffold Plate Starter Kit	AVP-KIT-1	1 × 12 well plate 1 × 24 well plate 1 × 96 well plate
Alvetex® Scaffold Well Insert Starter Kit	AVP-KIT-2	6 × 6 well inserts 6 × 12 well inserts 1 × Alvetex Well Insert Holder in a Deep Petri Dish
Alvetex® Strata Well Insert Starter Kit	STP-KIT-2	6 × 6 well inserts 6 × 12 well inserts 1 × Alvetex Well Insert Holder in a Deep Petri Dish

All Alvetex kit plate-units and inserts are individually sterile blister packed.

Product Name	Catalog Number	Presentation
Alvetex® Perfusion Plate with Alvetex® Scaffold 6 Well Inserts	AVP-KIT-3	2 × Alvetex® Perfusion Plate with Luer Locks 12 × Alvetex® Scaffold 6 Well Inserts
Alvetex® Perfusion Plate with Alvetex® Scaffold 12 Well Inserts	AVP-KIT-4	2 × Alvetex® Perfusion Plate with Luer Locks 12 × Alvetex® Scaffold 12 Well Inserts
Alvetex® Perfusion Plate with Alvetex® Scaffold 6 Well Inserts	AV-KIT-5	5 × Alvetex® Perfusion Plate with Luer Locks 48 × Alvetex® Scaffold 6 Well Inserts
Alvetex® Perfusion Plate with Alvetex® Scaffold 12 Well Inserts	AVP-KIT-6	5 × Alvetex® Perfusion Plate with Luer Locks 48 × Alvetex® Scaffold 12 Well Inserts

Choosing the right Alvetex 3D Cell Culture format based on assay type

The table below can guide your choice of the most suitable Alvetex format for your assay.

Types of Assay	Alvetex Scaffold						Alvetex Strata	
	6 well inserts	12 well inserts	24 well inserts	12 well plates	24 well plates	96 well plates	6 well inserts	12 well inserts
Viability/Proliferation/ Metabolic Activity Assays	+++	+++	+++	+++	+++	+++	+++	+++
Toxicity Assays	+++	+++	+++	+++	+++	+++	+++	+++
Gene Expression assays (qPCR/microarray)	+++	+++	+++	+++	+++	+++	+++	+++
Protein Expression assays (e.g. western blot)	+++	+++	+++	+++	+++	+++	+++	+++
Air-liquid Interface assays	+++	+++	+++	n/a	n/a	n/a	+++	+++
Cell Signalling assays	+++	+++	+++	+++	+++	+++	+++	+++
Permeability assays	+++	+++	+++	n/a	n/a	n/a	+++	+++
Transfection assays	+++	+++	+++	+	+	+	+++	+++
Co-culture assays	+++	+++	+++	++	++	++	+++	+++
Invasion assays	+++	+++	+++	+	+	+	+++[C]	+++[C]
Migration assays	+++	+++	+++	+	+	+	++[C]	++[C]
Histology	+++	+++	+++	++	++	++	++[C]	++[C]
Immunostaining (IHC/IF)	+++	+++	+++	++	++	++	+++	+++
Confocal microscopy	+++	+++	+++	++	++	++	++	++
Live cell imaging[A]	+++	+++	+++	++	++	++	++	++
Ex vivo tissue maintenance	+++	+++	+++	++	++	++	+++	+++
Live cell retrieval[B]	++	++	++	++	++	++	++	++

Suggested guidelines for the use of Alvetex formats for cell applications and assays:

+++ = most suitable
++ = suitable
+ = least suitable
n/a = not applicable

Ranking is based on Alvetex disc format suitability, the likely cell yields and therefore signal generation, and whether exogenously added chemicals and/or cells can be contained to only one side of the membrane.

A. The growth of cells cannot be followed by traditional light microscopy as in 2D, but as with ex vivo tissues, 3D structures have to be evaluated using histology or confocal microscopy. Alternatively cell proliferation can be monitored using a viability assay such as the MTT.

B. The exact number of cells retrieved from Alvetex varies with the invasiveness of the cell line cultured, e.g. epithelial vs. fibroblastic. Although the three-dimensional structure of Alvetex precludes all 100% of the cells from being routinely retrieved, calls can be retrieved in adequate numbers for quantitative downstream processes, e.g. flow cytometry.

C. When designing co-culture, invasion or migration set-ups for Alvetex Strata, please keep in mind that some cell lines (e.g. epithelial) have a tendency to multilayer on top of the substrate rather then invade into it.

Alvetex®

Advanced Tissue Bioengineering System

Built on the same Alvetex scaffold technology, the Alvetex Advanced Tissue Bioengineering System is REPROCELL's next-generation 3D tissue platform.

Alvetex Advanced is designed for scientists involved in tissue bioengineering, such as translational researchers who require organotypic tissue models (e.g., skin, mucosa, barrier tissue). Pharmaceutical and cosmetic researchers can develop reproducible models for studying skin barrier-function (e.g. TEWL, TEER, permeability, topical application, burn and wound healing, etc. Paracrine/crosstalk modelling can also be studied where multiple tissue models are submerged and sharing the same culture medium.

Why Alvetex Advanced?

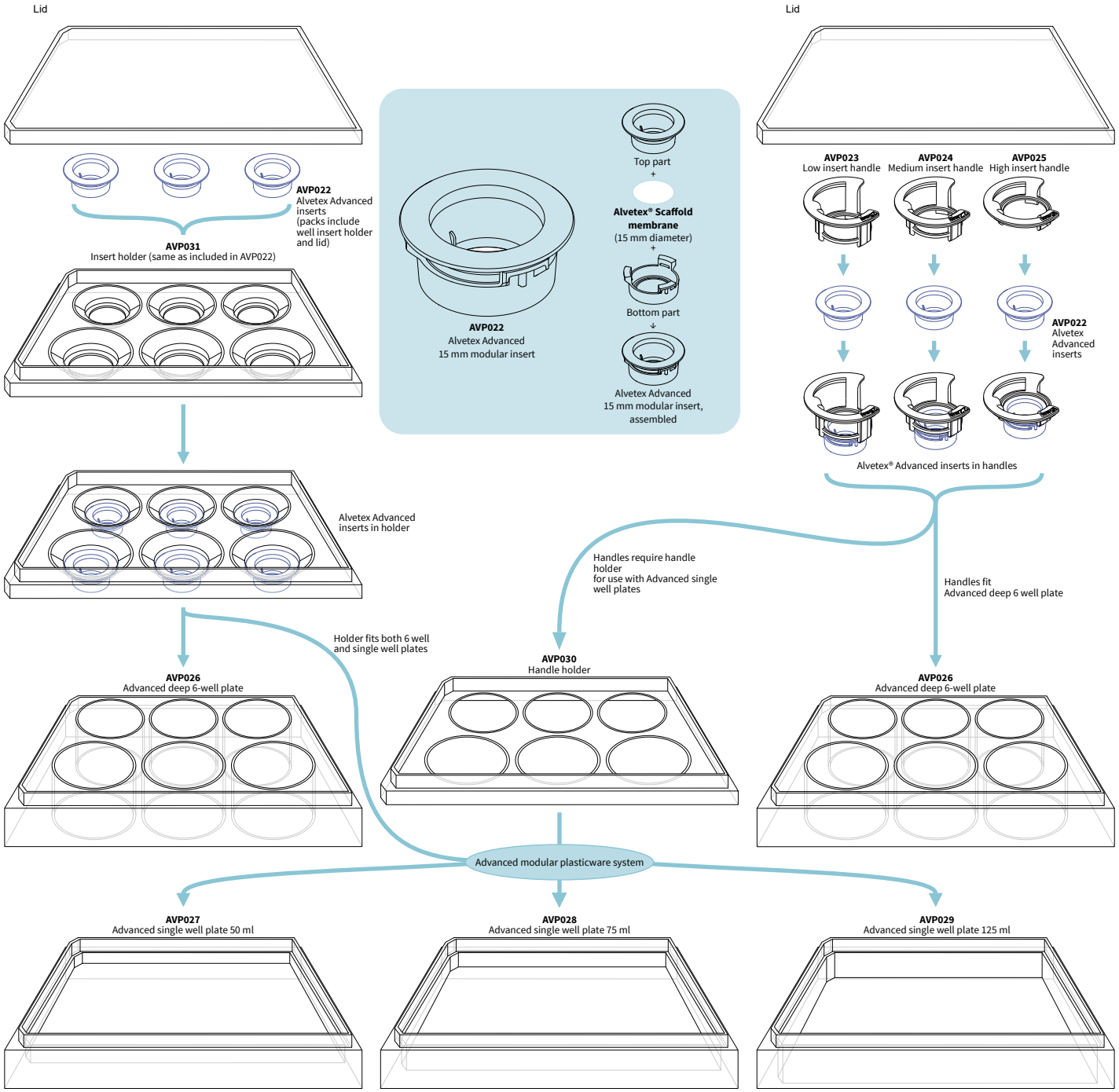
- **Biologically-Accurate Tissue Models:** Flexible scaffold design enables creation of advanced 3D human tissue, such as skin, that closely mimics native tissue.
- **Easy Topical Application:** Direct access to the epidermal/barrier surface allows simple testing of creams, chemicals, devices, or measurement probes.
- **Leak-Free Innovation:** A unique tissue seal between compartments minimises leakage and eliminates "edge effects" — especially useful for barrier assays.
- **Non-Invasive Functional Readouts:** Compatible with standard skin barrier and physiology measurements, including pH, TEWL, TEER, water loss, and dye penetration.
- **Seamless Lab Integration:** Inserts can be transferred between standard and custom plate formats without disrupting cultures.
- **Customisable Handles & Interfaces:** Interchangeable handles allow precise control of insert depth, medium volume, and air-liquid interface positioning.
- **Flexible Incubation Options:** Models can be maintained in custom deep 6 well plates or Advanced single well plate.

Alvetex Advanced Tissue Bioengineering System

https://www.reprocell.com/product-catalog/alvetex-advanced-tissue-bioengineering-system

The key component is the the Alvetex Advanced 15 mm Modular Insert (AVP022), that holds a 15 mm disc of Alvetex Scaffold with a leak-free tight seal around its circumference. It is modular and highly versatile, in that it fits with either the well insert holder (included with AVP022 or separately as AVP030) one of three bespoke handles that hold the inserts at different heights (low, medium, or high) within the large media capacity deep plates of the Alvetex Advanced Tissue Bioengineering System.

The Alvetex® Advanced Tissue Bioengineering System

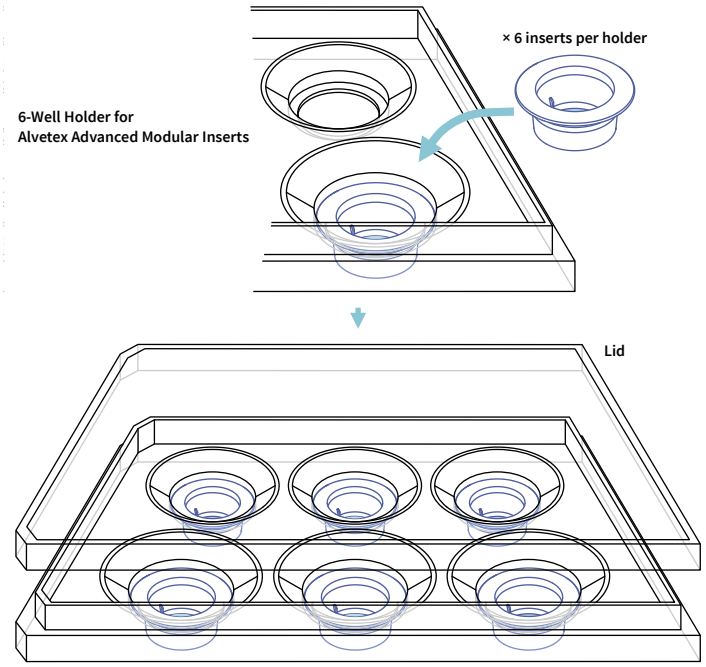


Alvetex Advanced Modular Inserts

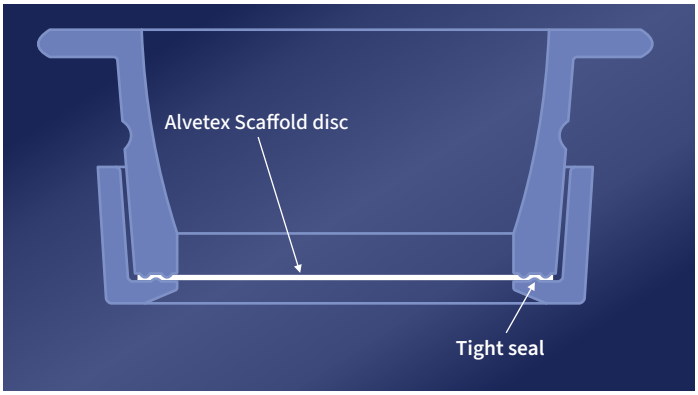
The Alvetex Scaffold modular insert containing Alvetex Scaffold membrane (AVP022) is designed for tissue bioengineering. The Alvetex Scaffold membrane is housed within a specially designed insert providing a tight seal around its perimeter, enabling the construction of tight tissue models and barrier testing.

Packs contain multiple units of 6 × Alvetex Advanced 15 mm modular inserts nested inside a 6-well holder with lid. Each unit is sterile blister packed.

Above: Alvetex Advanced 15 mm Modular Insert.



Above and Bottom right: Alvetex Advanced 15 mm Modular Insert in 6 Well Insert Holder.



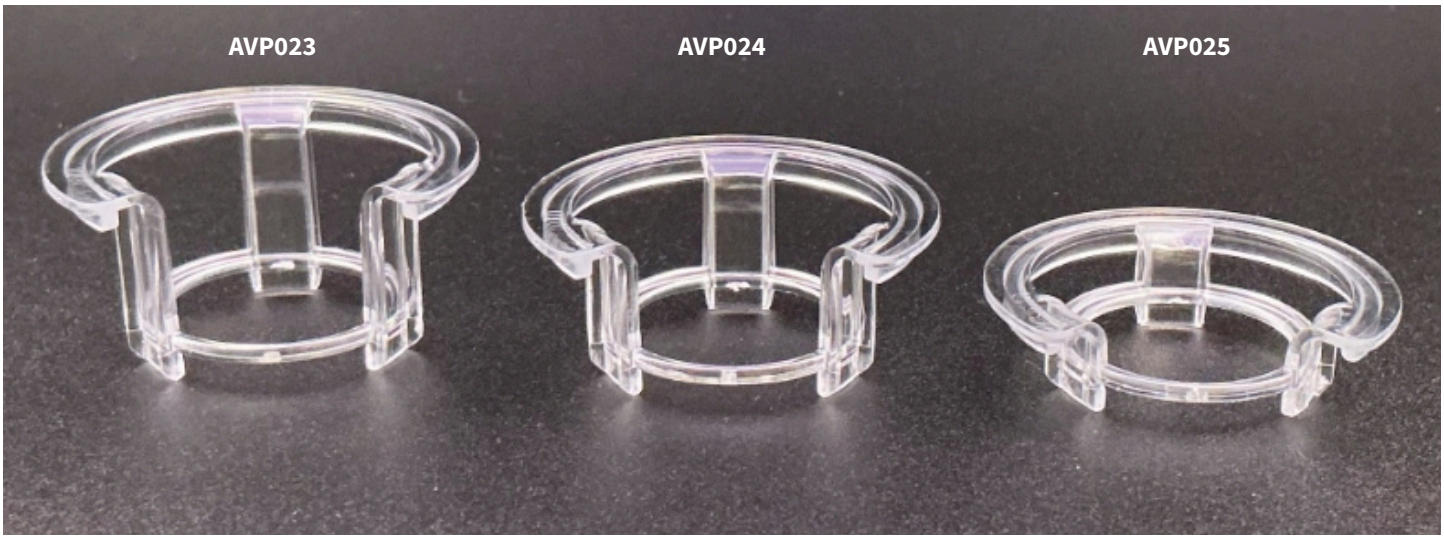
Above: Scematic of the Alvetex Advanced 15 mm Modular Insert showing the leak-free tight seal around the perimeter of the Alvetex Scaffold disc (15mm diameter, 200 µm thick).

Product Name	Catalog Number	Presentation
Alvetex® Advanced 15 mm modular inserts (units of 6 inserts, holder and lid)	AVP022-6 AVP022-12 AVP022-24 AVP022-48 AVP022-60 AVP022-96	1 unit 2 units 4 units 8 units 10 units 16 units

Units are individually sterile blister packed.

The insert holder (also available separately as AVP031) can support 6 Alvetex Advanced modular inserts and is designed such that the culture medium beneath is separated from the upper side of the insert, reducing the risk of media contamination during interactions with the surface of the bioengineered model. The insert holder fits into the single welled plates (AVP027, AVP028 or AVP029), deep 6 well plate (AVP026) and most common commercial 6 well plates.

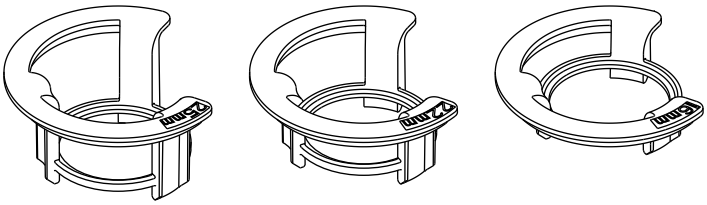
Handles for Alvetex Advanced modular inserts



Above: Handles for Alvetex Advanced modular inserts. **Left**: low handle (AVP023). **Midde**: low handle (AVP024). **Left**: high handle (AVP025).

Handles for Alvetex® Advanced modular inserts are for pairing with other items from the Advanced modular plasticware range.

Handles of different lengths allow the user to control the height of the Alvetex Advanced modular insert within the culture plate, providing greater control of media volumes and capability for growth and the air-liquid interface.

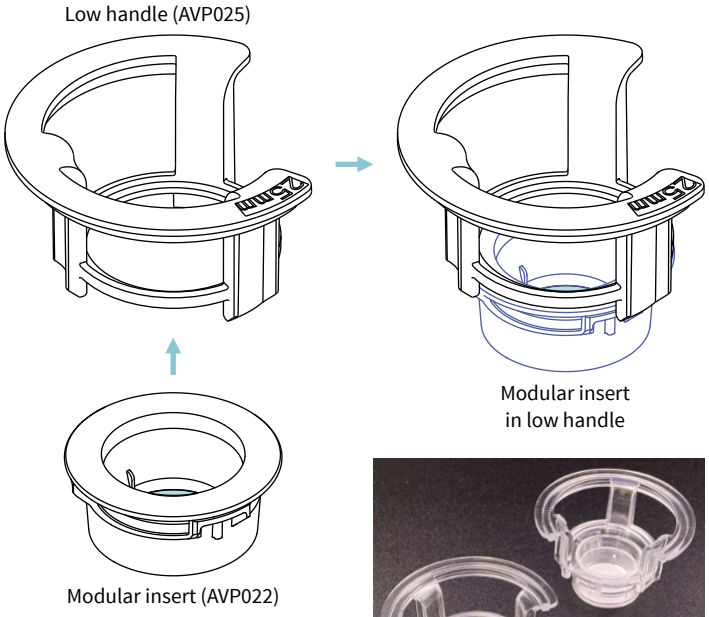


AVP023
Low handle

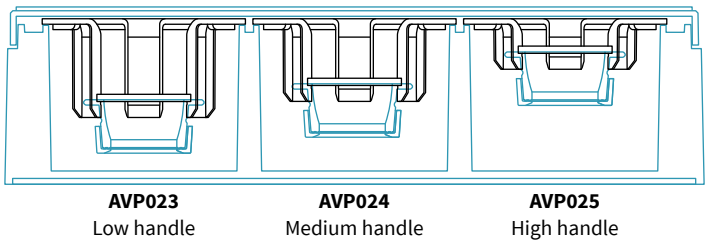
AVP024
Medium handle

AVP025
High handle

Product Name	Catalog Number	Presentation
Low Handles for Alvetex® Advanced modular inserts	AVP023-12 AVP023-24 AVP023-48 AVP023-60 AVP023-96	12 low handles 24 low handles 48 low handles 60 low handles 96 low handles
Medium Handles for Alvetex® Advanced modular inserts	AVP024-12 AVP024-24 AVP024-48 AVP024-60 AVP024-96	12 medium handles 24 medium handles 48 medium handles 60 medium handles 96 medium handles
High Handles for Alvetex® Advanced modular inserts	AVP025-12 AVP025-24 AVP025-48 AVP025-60 AVP025-96	12 high handles 24 high handles 48 high handles 60 high handles 96 high handles



Above: Diagram showing how the Alvetex Advanced modular insert clips to the bottom of a handle.



AVP023
Low handle

AVP024
Medium handle

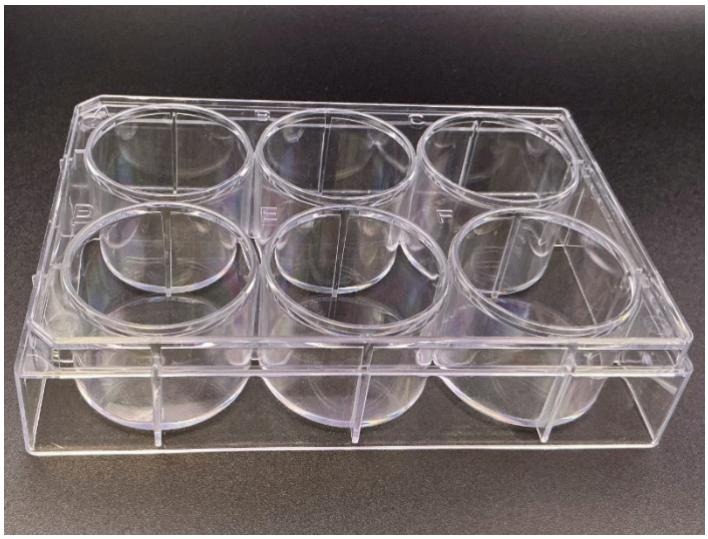
AVP025
High handle

Above: Alvetex Advanced inserts (AVP022) in low (AVP023), medium (AVP024), and high (AVP025) handles in Advanced deep 6 well plate (AVP026).

Advanced Deep Plates (6-Well)

Designed for the Alvetex Advanced 3D tissue bioengineering system but useful for a wide variety of cell culture applications, our highly versatile Advanced Deep Plates 6 Well (AVP026) give the researcher more flexibility by reducing the required number of culture media changes. Supplied with lid.

Advanced deep plates 6 well needs to be paired with 6-well holder for Alvetex Advanced modular inserts (included in AVP022 or available separately as AVP031), or Alvetex Advanced insert holders (AVP023, AVP024, and/or AVP025).



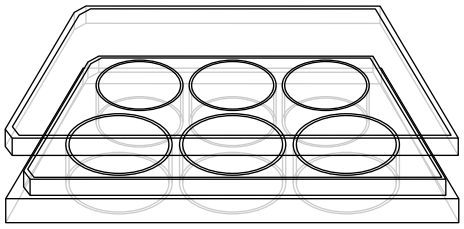
Product Name	Catalog Number	Presentation
Advanced Deep Plates 6-Well, With Lid	AVP026-5 AVP026-10 AVP026-15	5 units 10 units 15 units

Units are individually sterile blister packed.

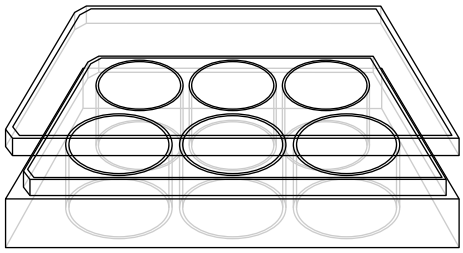
Right: Comparing a typical commercial 6 well plate with REPROCELL's Advanced Deep Plate 6 Well.

	Commercial 6 well plate	Advanced Deep Plate 6 Well (AVP026)
Well depth	16.5 mm	27 mm

Commercial 6 well plate



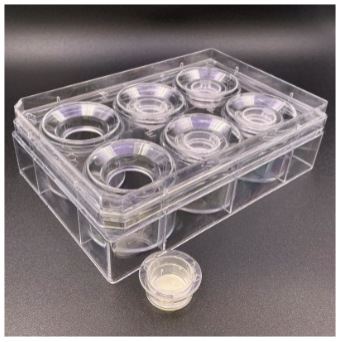
Advanced Deep Plate 6 Well (AVP026)



In the Alvetex Advanced Tissue Bioengineering System, Advanced Deep Plates 6 Well (AVP026) is designed for use with Alvetex Advanced 15 mm Modular Inserts (AVP022), fitted into the 6 well insert holder included in AVP022* (diagram **A** below) or fitted into any of the handles: AVP023, AVP024, or AVP025 (diagram **B** below).

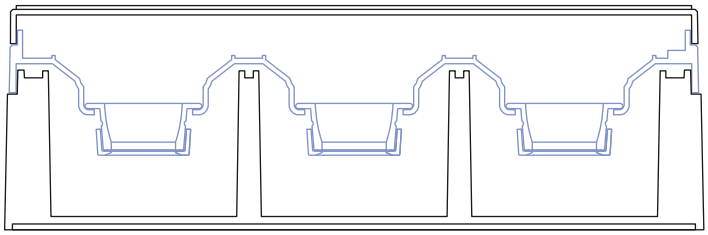
Besides being designed for Alvetex Advanced, this deep 6 well plate can be used for other applications.

(* The holder is also available separately as AVP031.)

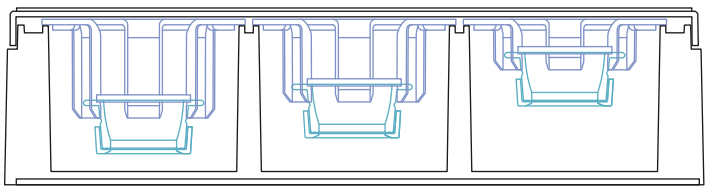


Right: Alvetex Advanced 15 mm Modular Insert (AVP022) in 6-Well Holder, on an Advanced Deep Plate 6 Well (AVP026).

A



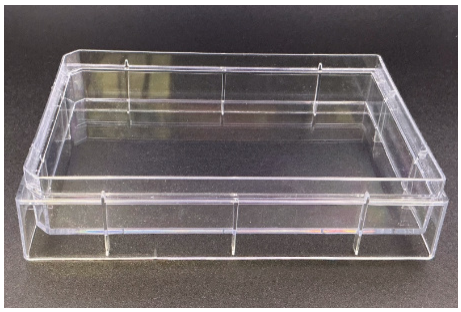
B



Above: A: Advanced Deep Plate 6 Well (AVP026) with Alvetex Advanced 15 mm Modular Insert fitted to well insert holder (AVP022 or AVP031). **B:** Advanced Deep Plate 6 Well (AVP026) with Alvetex Advanced 15 mm Modular Insert (AVP022) fitted to low handle (AVP023), medium handle (AVP024) or high handle (AVP025). Note that these handles do not require the well insert holder when used with the Advanced Deep Plate 6 well (AVP026).

Advanced Single Well Plates

AVP027



AVP028

AVP029

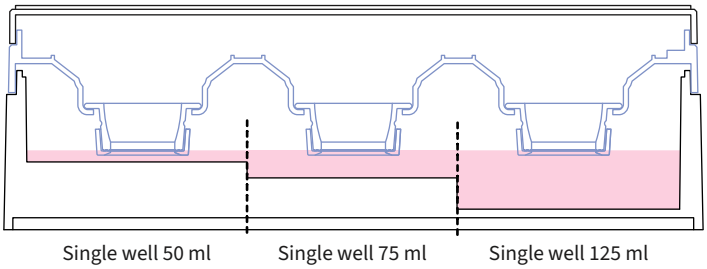
Designed for the Alvetex Advanced 3D tissue bioengineering system but useful for a wide variety of cell culture applications, our highly versatile Advanced Deep Plates Single Well give the researcher more flexibility by reducing the required number of culture media changes and by allowing bioengineered tissues to share the same media (facilitating e.g. paracrine cross-talk studies). Supplied with lid.

All Advanced Deep Plates need to be paired with 6-well holder for Alvetex Advanced modular inserts (included in AVP022 or available separately as AVP031).

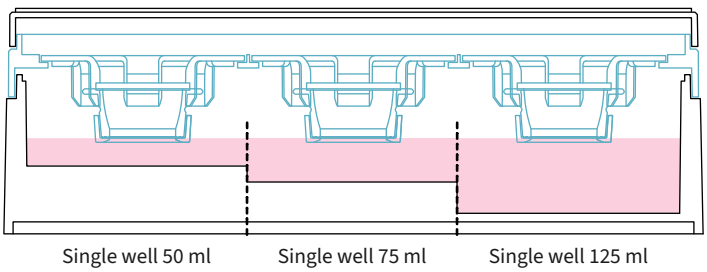
When using or Alvetex Advanced insert holders with Handles (AVP023, AVP024, and/or AVP025) and with Advanced Deep Plates Single Well, these will need to be suported using the the 6 well handle handle holder (AVP030).

Product Name	Catalog Number	Presentation
Advanced Single Well Plate (50 ml) With Lid	AVP027-5 AVP027-10 AVP027-15	5 units 10 units 15 units
Advanced Single Well Plate (75 ml) With Lid	AVP028-5 AVP028-10 AVP028-15	5 units 10 units 15 units
Advanced Single Well Plate (125 ml) With Lid	AVP029-5 AVP029-10 AVP029-15	5 units 10 units 15 units

A

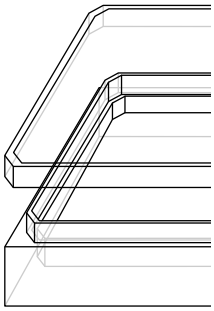


B



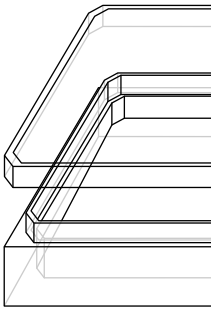
Above: A: Advanced Deep Plate Single Well (50 ml, AVP027; 75 ml, AVP028; 125 ml, AVP029) paired with Alvetex Advanced 15 mm Modular Inserts in Insert Holder (AVP022), showing different volumes of culture media just touching the location of the Alvetex Scaffold disc (i.e. so that cells growing within the scaffold are at the air-liquid interface). **B:** Advanced Deep Plate Single Well (50 ml, AVP027; 75 ml, AVP028; 125 ml, AVP029) paired with Alvetex Advanced 15 mm Modular Inserts in High Handles (AVP025) supported by Handle Holder (AVP030), also showing media level at the air-liquid interface.

AVP027



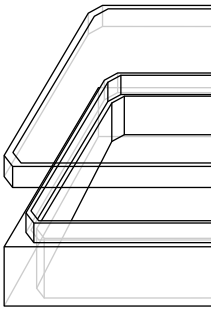
Single well 50 ml

AVP028



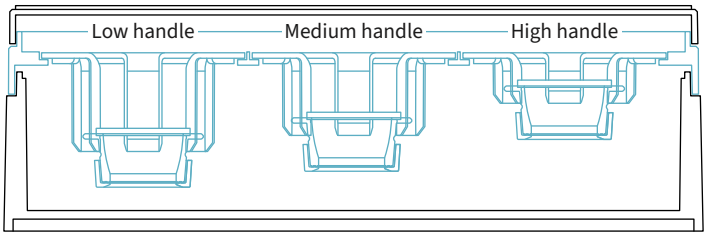
Single well 75 ml

AVP029



Single well 125 ml

C

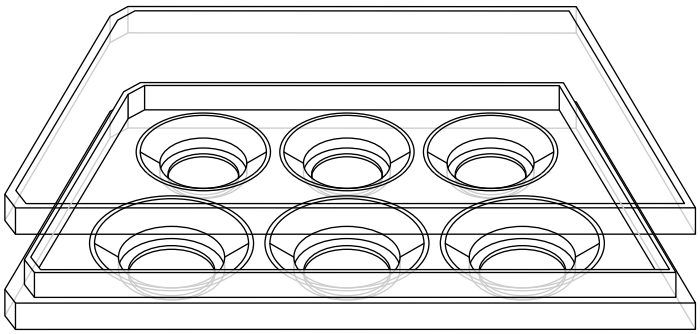


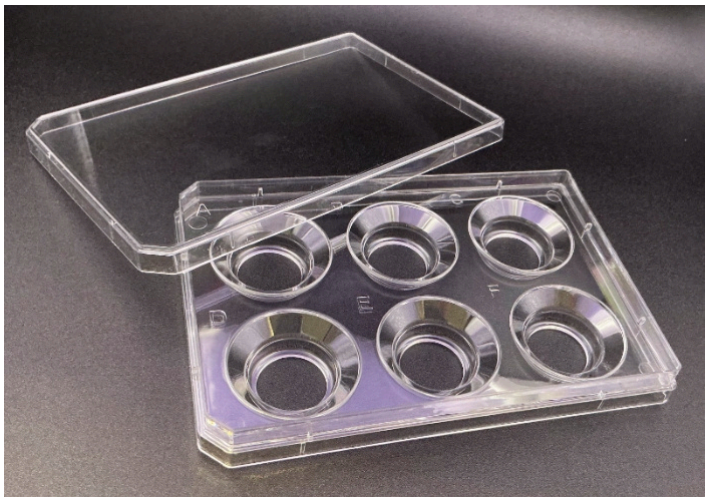
C: Advanced Deep Plate 125 ml (AVP029) paired with Handle Holder (AVP030) supporting the three sizes of Handle Holders (low, AVP023; medium, AVP024; high, AVP025).

Insert Holder for Alvetex Advanced Modular Inserts

Designed for 6 Alvetex Advanced modular inserts (without handles), for enabling researchers to easily move bioengineered tissue models between different format plates with minimal disruption.

This holder also provides a layer of separation between the surface of the model and the media source below—useful during the topical application of test compounds/flora to skin models without contaminating the media.



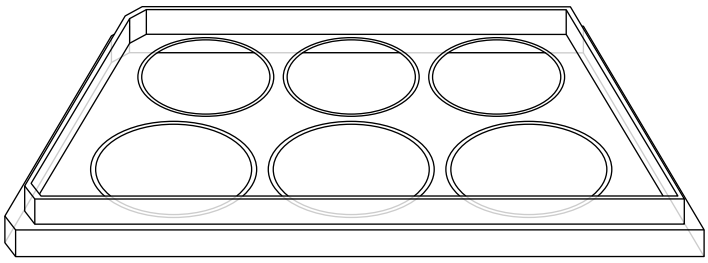


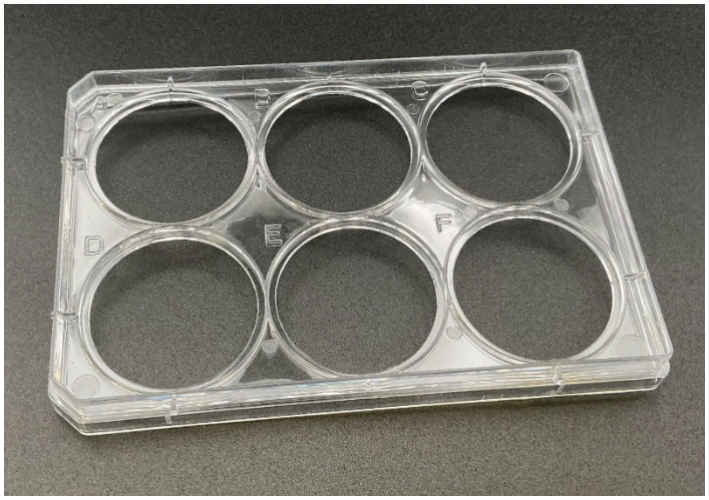
Product Name	Catalog Number	Presentation
6-Well Holders for Alvetex® Advanced Modular Inserts, With Lid	AVP031-1 AVP031-2 AVP031-10	1 holder 2 holders 10 holders

Handle Holder for Alvetex Advanced Modular Insert Handles

For use with Advanced Single Well Plates; required when using low, medium or high handles.

Designed for use with Advanced deep well plates (AVP027, AVP028 or AVP029), paired with Alvetex Advanced modular well insert handles (low AVP023, medium AVP024, or high AVP025).



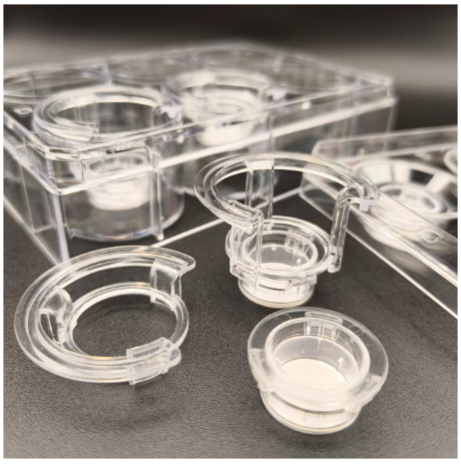


Product Name	Catalog Number	Presentation
6-well handle holders for use with Advanced single well plates	AVP030-2 AVP030-4 AVP030-10	2 holders 4 holders 10 holders

Alvetex Advanced Kits

Alvetex Advanced Starter Kit – 15mm Modular Inserts with Adjustable Heights

Perfect for researchers aiming to explore gradient effects, epithelial studies, and applications where oxygenation and nutrient supply can be modulated.



Includes:

- Modular inserts (containing 15mm diameter Alvetex Scaffold membrane)
- Insert holder
- High and low insert handles
- Bespoke 6-well deep plates

Key Benefits:

- Grow 3D cultures at alternative levels within the plate
- Test different media volumes with ease
- Elevate cultures to the air-liquid interface for advanced applications
- Modular design supports tailored experimental flexibility

Product Name	Catalog Number	Presentation
Alvetex® Advanced Starter Kit – 15mm Modular Inserts with Adjustable Heights	ADV-KIT-1	1 kit

Alvetex Advanced Starter Kit – Co-culture and Paracrine Study Platform

This kit is especially suited for cancer biology, immunology, drug discovery, and regenerative medicine studies where interactions between different cell types are essential.

Includes:

- Modular inserts (containing 15mm diameter Alvetex Scaffold membrane)
- Insert holder
- Medium insert handles + handle holders
- Bespoke 6-well deep plates
- Novel 75 ml single well plates

Key Benefits:

- Culture models in isolation, then bring them together for **co-culture**
- Ideal for **paracrine signaling** and cross-talk studies
- Flexible setup to mimic tissue–tissue interactions
- Maintains physiological relevance by supporting 3D growth conditions

Product Name	Catalog Number	Presentation
Alvetex® Advanced Starter Kit – Co-culture and Paracrine Study Platform	ADV-KIT-2	1 kit

Bioengineered

3D Tissue Services

REPROCELL are experts in pharmacological testing using both human fresh tissue and bio-engineered tissue models grown *in vitro*.

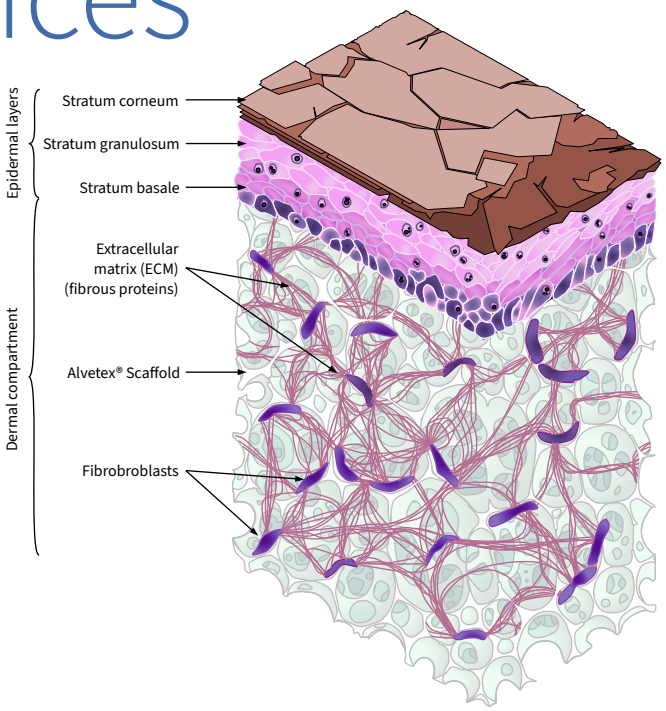
Human tissue testing stands as an indispensable element in the realm of drug discovery and development, serving as a cornerstone for evaluating the safety and efficacy of pharmaceuticals destined for human consumption. Human data holds paramount importance in forecasting clinical success, as positive outcomes within human test systems can substantially enhance the commercial potential of drug candidates.

To better translate preclinical data to the clinic, researchers turn to REPROCELL's contract testing services in human fresh tissues or our bioengineered 3D human tissue models.

REPROCELL's 3D bioengineered human tissues, constructed using Alvetex®, complement our fresh tissue assays by accurately recapitulating human biology in longer duration experiments, allowing investigations into mechanisms that are key to many drug targets including fibrosis, wound healing and epithelial barrier disruption.

Alvetex bioengineered tissue models are self-assembled by growing multiple cell types together, re-creating native tissue architecture. The formation of a biologically-accurate structure occurs as the cells coordinate with each other via their innate signalling mechanisms.

Our human tissue models are also useful for testing other substances including chemicals, consumer products, cosmetics and pollutants.



Above: REPROSKIN™, our full thickness skin model, is comprised of epidermal keratinocytes and dermal fibroblasts, with a morphology comparable to native skin. **Header background:** histological image of REPROSKIN™.

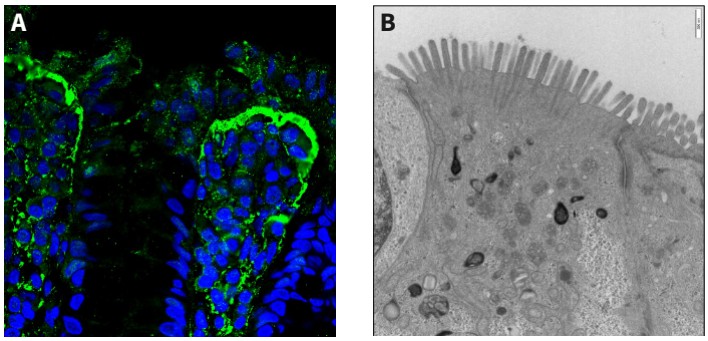
Bioengineered 3D Tissue Services

https://www.reprocell.com/drug-efficacy-safety-adme/bioengineered-3d-tissue-models

Our assay services using Alvetex 3D bioengineered tissue models

IBD Model

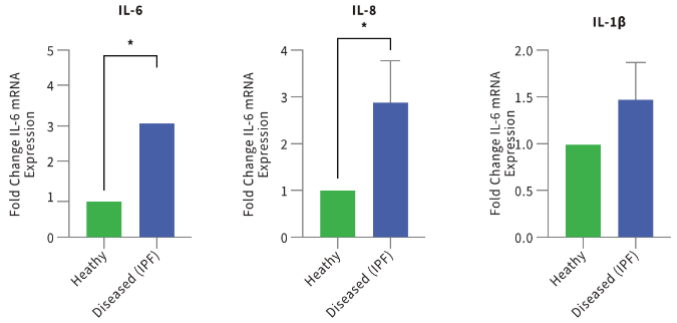
REPROCELL's inflammatory bowel disease (IBD) tissue model is the most advanced commercially available bioengineered model of IBD. The tissues mimic key features of the inflamed GI mucosa of Crohn's and ulcerative colitis patients, allowing investigations into inflammation, barrier integrity and fibrosis.



Right: A: The IBD biomarker MMP-9 (green) accumulates at the epithelial/stromal interface of the 3D model, which is the same as can be observed in ulcerative colitis tissues of patients. **B:** A confluent microvilli brush border is observed across the surface of the unstimulated 3D model, showing clear rootlet visibility.

IPF Model

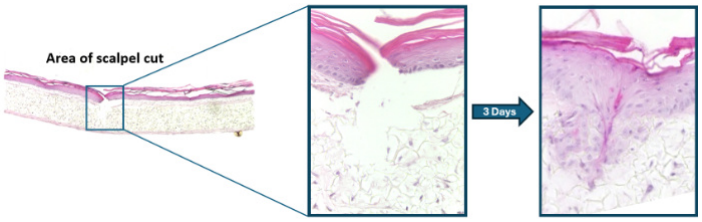
Our idiopathic pulmonary fibrosis (IPF) model is the most effective model available for investigation of drugs to treat pulmonary fibrosis. The model uses human primary lung fibroblasts from patients with IPF and an alveolar type II cell line to create a 3D model of the lung. This is the most sophisticated in vitro tissue modelling fibrotic lung.



Right: Our IPF model shows elevated gene expression for IL-6/8/1β, relative to the healthy lung models, and increased ECM deposition, turnover and fibroblast activation, allowing the testing of anti-fibrotic compounds over many days in culture.

Skin Model: REPROSKIN™

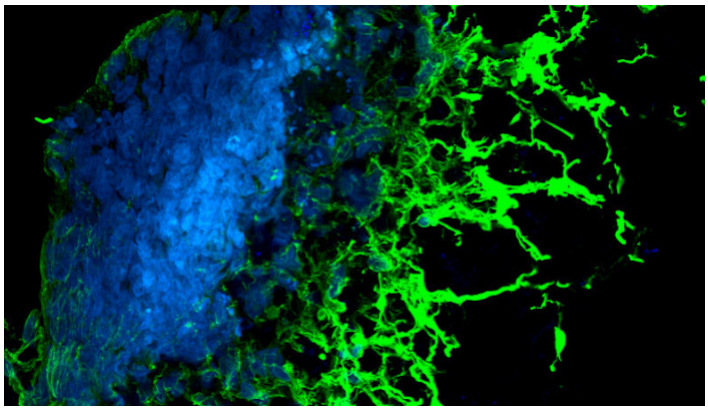
Our cutting-edge full-thickness engineered skin model, constructed from human primary cells, represents the forefront of the market for drug discovery assays. This model consists of a dermal layer supporting a stratified keratinized epithelial layer, providing a highly accurate representation of human skin.



Above: wound healing experiment in REPROSKIN™, our full thickness bioengineered skin model. REPROCELL has developed customised skin models from primary cells for healthy skin, wound healing and skin damage, ageing, pigmented skin, sensory skin, and immune competent skin.

Neurite Model

Measuring neurite outgrowth allows for the evaluation of the impact of test drugs on neurite formation or toxicity. Our translational neurite model integrates Alvetex scaffolds with iPSC-derived human neurons, resulting in the formation of a mature neuronal network complete with synaptic connections. This innovative model provides a comprehensive platform for assessing drug effects on neuronal function and viability.



Right: Immunocytochemistry analysis showing neurites penetration though Alvetex Scaffold in our 3D outgrowth model. Neurites were visualized by staining with the pan neuronal marker TUJ-1 (green). Nucleii in the neurosphere are stained blue.