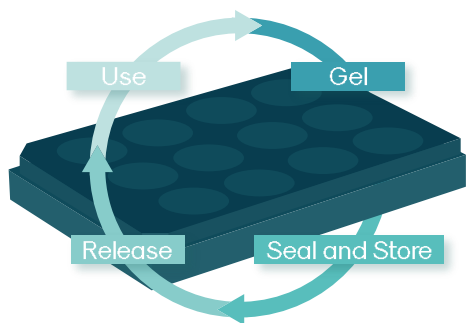




# WellReady™

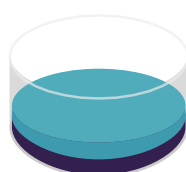
## Storage of assay-ready plates



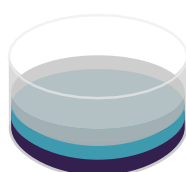
An alginate solution is added to adherent cells in any plate format. Once the gelation solution is added the gel is formed. Can be used in 384, 96, 48, and 24 well plates. WellReady™ is also suitable for culture inserts and 3D scaffolds.

This protective gel barrier is sensitive enough for the cells whilst being tough enough to withstand shipping. When cells are needed, a release buffer gently removes the gel barrier.

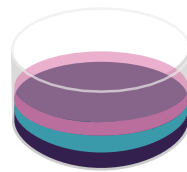
Fully compatible with automated systems



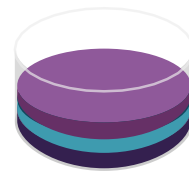
Gel A and  
Gel B



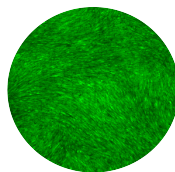
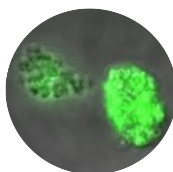
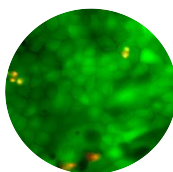
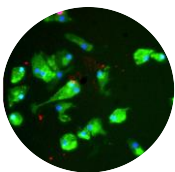
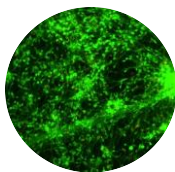
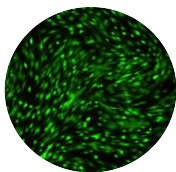
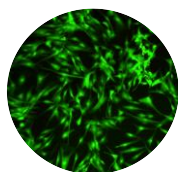
Gelation  
Buffers



Wash



Gel C &  
Store



CELLS SUCCESSFULLY PRESERVED USING WELLREADY™ INCLUDE:

- iPSC-DERIVED CORTICAL NEURONS
- iPSC-DERIVED CARDIOMYOCYTES
- iPSC-DERIVED MONOCYTES
- KIDNEY PROXIMAL TUBULE EPITHELIAL CELLS
- CORNEAL STROMAL KERATOCYTES
- 3D HEPATOCYTE MODELS
- 3D SKIN MODELS
- 3D CANCER MODELS
- COLORECTAL CANCER ORGANOIDS
- PRIMARY SKIN BIOPSIES
- MESENCHYMAL STEM CELL SPHEROIDS
- DERMAL KERATINOCYTES
- DERMAL FIBROBLASTS
- MESENCHYMAL STEM CELLS
- MYOBLASTS

# Room temperature preservation of

# Cardiomyocytes

Pluripotent stem cell-derived cardiomyocytes can be generated with high fecundity, with applications in drug discovery and disease modelling. These cells are now beginning to enter the clinical research phase of the testing of heart regeneration therapies. One major drawback is the transportation of these cells from point of manufacture to point of use.

## 7 Day In-Plate Storage

WellReady™ allows for cardiomyocytes to be stored and transported in-plate, without the need for freezing or the addition of toxic cryoprotectants. hiPSC-derived cardiomyocytes in 96-well plates were stored using WellReady™ for 7 days at room temperature (~20°C).

## Return of Action Potentials

Post recovery from storage, cardiomyocytes regained their action potentials and returned to prior beating pattern.

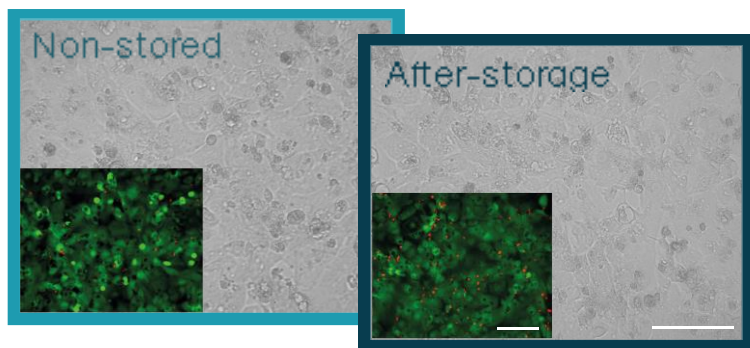


Figure 1. Live/dead staining of cardiomyocytes before and after preservation shown by calcein-AM/ethidium homodimer-1.

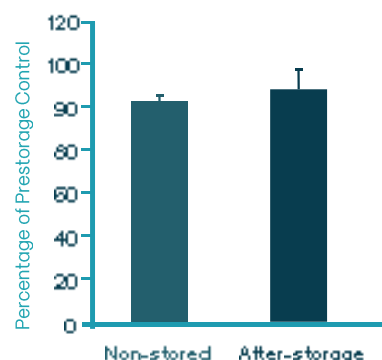
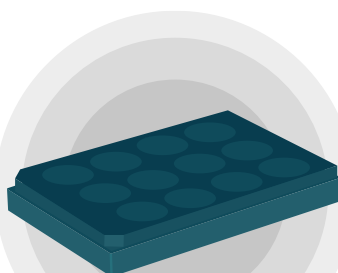


Figure 2. Alamar blue metabolic activity pre storage and after storage.

## WellReady™

Cells or organoids in multi-well plates are protected by layers of hydrogel. A gel solution is pipetted into each well, followed by the gelation solution. After waiting a few minutes for the gel to form, the plates are ready for storage or shipment to the end user. Adding the gentle release buffer to the wells causes the gel to dissolve. The solutions are then discarded and replaced with your cells' preferred media, plates are then ready for use.



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## Storage and shipment of

# Human Hepatocytes

Hepatocytes are an important cell type for toxicology assays. Currently hepatocytes cannot be cryo-stored effectively. Co-cultures of primary liver cells and stromal feeder layers were stored in-plate using WellReady™.

## 5 Day In-Plate Storage

WellReady™ was used to preserve hepatocyte/stromal co-cultures in sealed 96-well plates for 5 days at 37°C.

## Prevents Cell Exhaustion

Hepatocytes maintained metabolic activity following storage. The natural decline in the level of Cytochrome P450 was paused by storage with WellReady™. Cell morphology was unaffected by storage and cell viability was maintained.

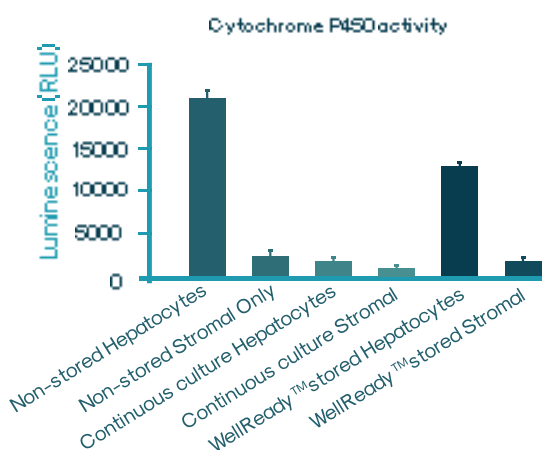


Figure 1. Cytochrome P450 activity in hepatocytes and stromal cells

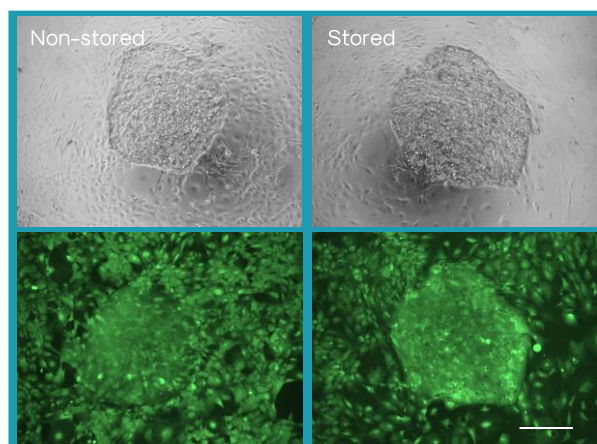
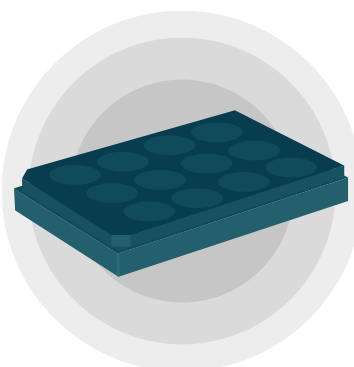


Figure 2. Brightfield and live/dead staining of hepatocytes before and after preservation shown by calcein-AM/ethidium homodimer-1.

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# Room temperature preservation of

# iPSC Cortical Neurons

Human iPSC-derived neural progenitor cells are matured for at least 2 weeks before dispatch to customers at 37°C. This necessitates the use of sophisticated storage and shipping mechanisms to maintain the cells in a viable condition.

## 7 Day In-Plate Storage

Differentiated neurons were matured for 34 days before storage and shipment. Cells were stored for 24 hours at room temperature in sealed 96-well plates containing either 0.3 mL neural maintenance medium or using WellReady™ encapsulation. After 24 hours, plates were shipped overnight by courier to Cambridge in CRT packaging before being transported back to Newcastle by road on the third day of preservation. Neuron cultures protected with WellReady™ exhibited improved viability and intact axonal networks.

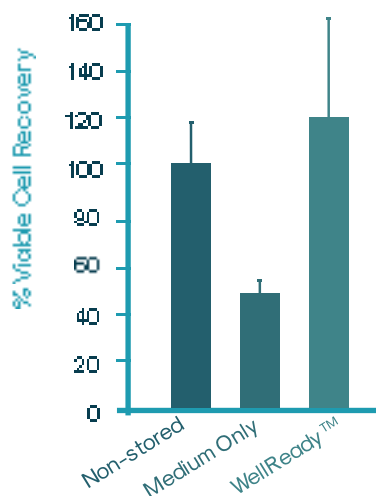


Figure 1. Percentage viable cortical neurons after 5 days of storage

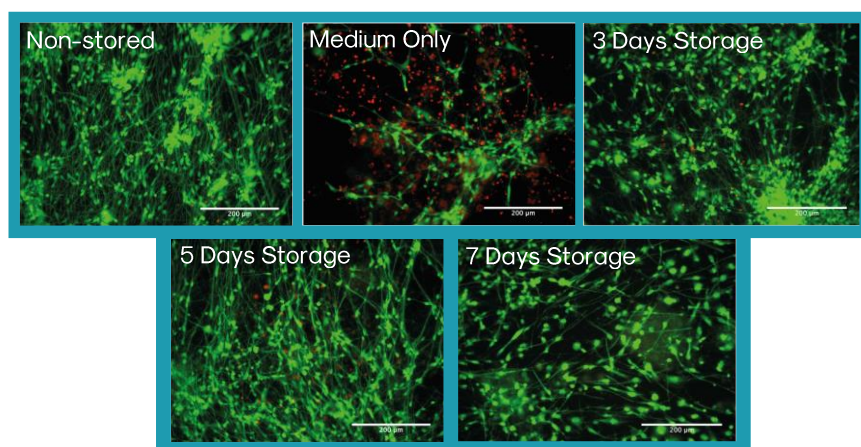
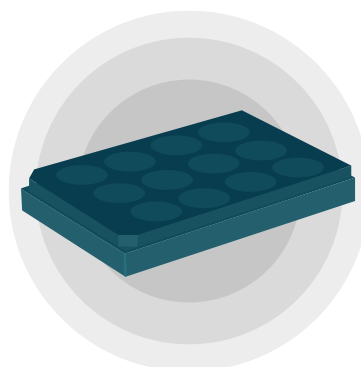


Figure 2. Live/dead staining of iPSC cortical neurons before and after preservation shown by calcein-AM/ethidium homodimer-1.

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# Room temperature preservation of HEK293

## High-Throughput Application Notes

Multi-well plates are a key format for high-throughput drug screening and assay development. Automation enables faster, more accurate, and more ambitious testing regimes to be instated.

### 5 Day Storage and Shipment

HEK293 cells were plated into either 96 or 384 multi-well plates and shipped via routine courier with a storage time totalling 5 days. Liquid handling was performed with a ViaFlo384 (Integra) 16-channel dispenser. Cell functionality as assessed using Cyclic-AMP response element luciferase based assay, calcium flux (FLIPR) assay, and kinase based live cell assay.

### WellReady™ is Fully Compatible with Liquid Handlers

In all cases the responses to stimuli after release and return to culture conditions was similar to non-shipped samples.

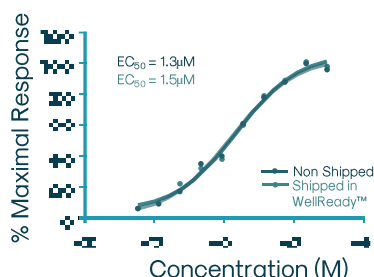


Figure 1. 384-well cyclicAMP assay

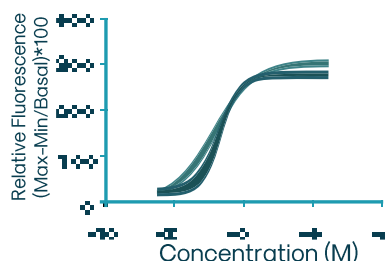


Figure 2. 384-well calcium flux based FLIPR assay

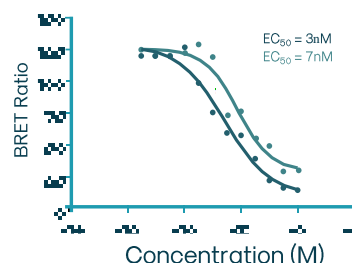
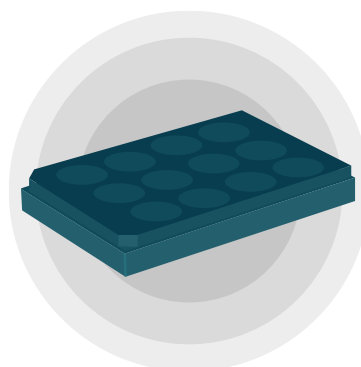


Figure 3. 96-well kinase based target engagement live cell binding assay

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# Room temperature preservation of

## *In vitro* skin models

2D and 3D skin models are useful tools for toxicology and drug discovery applications. These cells are now beginning to enter the clinical research phase for the testing of heart regeneration therapies. One major drawback is the transportation of these cells from point of manufacture to point of use.

### Storage in 2D and 3D

WellReady™ can be used to store and ship dermal keratinocytes and fibroblasts as monolayers or as air-lifted 3D cultures in cell culture inserts. Skin cells in 96-well plates, or 24-well plate culture inserts stored using WellReady™ for up to 7 days at room temperature (~20°C) maintained high viability and integrity.

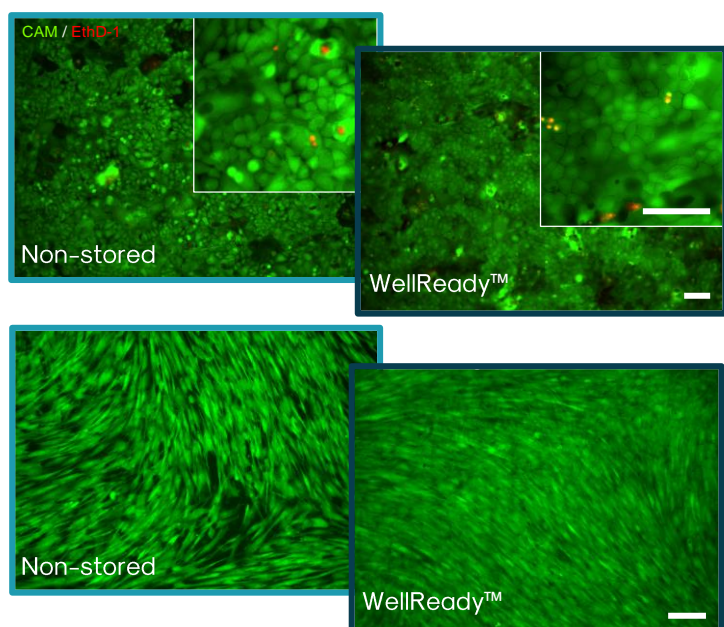


Figure 1. Live/Dead staining of dermal keratinocytes (*top*) and dermal fibroblasts (*bottom*) before and after 5-day storage as shown by calcein-AM/Ethidium Homodimer-1.

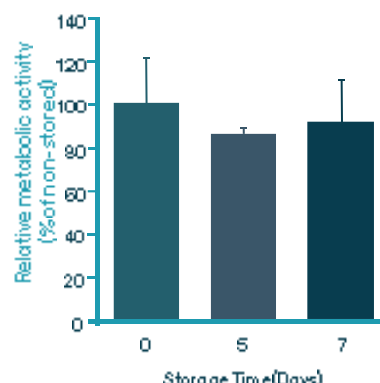
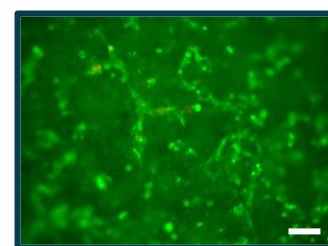
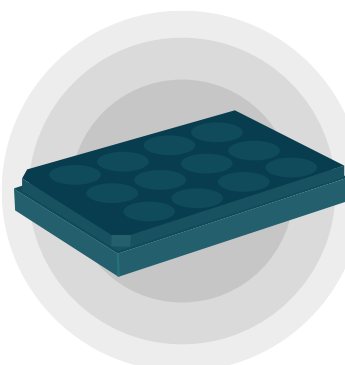


Figure 2. Live/Dead staining (*top*) and metabolic activity (*bottom*) of airlifted stromal/epithelial skin models stored using WellReady™

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