ATELERIX ENABLES AMBIENT DISTRIBUTION OF OF LABSKIN'S ADVANCED 3D FULL THICKNESS SKIN MODEL

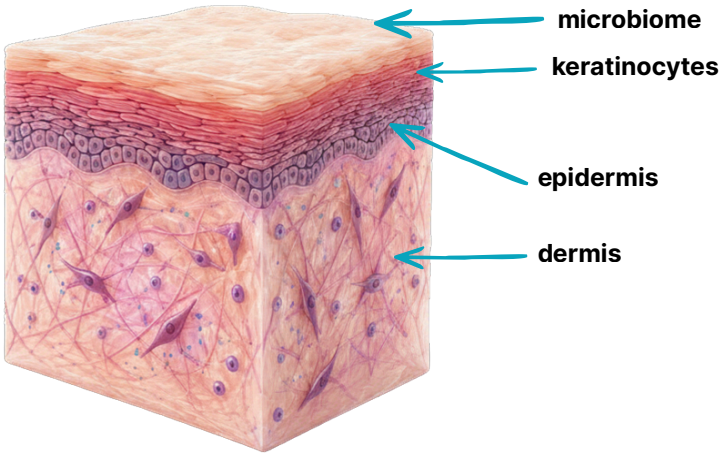
Atelerix WellReady™ Case Study

LabSkin SKIN SCIENCE x ATELERIX SAVE YOUR CELLS

MODEL	STORAGE	DURATION	COMPARATOR	ENDPOINT
Labskin full-thickness skin model	Ambient (18-25°C)	Up to 120 hours	Agarose control	Histology + microbiological recovery

LabSkin's 3D Full-Thickness Skin Model

Labskin is a full-thickness, metabolically active human skin equivalent developed over 16 years with extensive scientific validation. It replicates both dermal and epidermal structures and supports microbiome colonisation, making it highly valuable for studying skin biology and testing cosmetic and therapeutic products.



- **Stratified epidermis with functional barrier properties**
- **Active fibroblasts producing extracellular matrix components**
- **Cytokine-producing keratinocytes**
- **Compatibility with microbial colonisation**

The Challenge: LabSkin faces transport limitations

Despite these advantages, Labskin constructs have a limited shipping window of approximately 96 hours before requiring feeding, making global distribution challenging. Shipping living tissue models internationally therefore introduces multiple risks:

- **Customs delays**
- **Flight disruptions**
- **Temperature variability**
- **Handling inconsistencies**

3D MODEL DETERIORATION

- **Experimental failure** ✗
- **Increased costs** ✗
- **Delayed research timelines** ✗
- **Missed customer deadlines** ✗

HOW WELLREADY™ WORKS

The Atelerix Solution: WellReady™ enables complex 3D tissue models to be shipped safely while preserving their structure, phenotype and function throughout transit.

Embed the base of the tissue insert in WellReady gel

Apply a protective gel layer to the tissue surface

Ship with dissolution solution and simple instructions

Recover viable tissue upon arrival

WELLREADY™ ENABLES AMBIENT-TEMPERATURE PRESERVATION OF LABSKIN'S 3D FULL THICKNESS SKIN MODEL

Under the conventional shipping method, LabSkin's 3D skin model tissue architecture remained largely intact for up to 48 hours; however, beyond this time point, progressive deterioration was observed. Histological analysis demonstrated disruption of the stratum corneum, increasing cell death within the epidermis, and loss of viability in the basal cell layer, which is essential for maintaining epidermal homeostasis. Furthermore, dermal fibroblasts, despite their inherent resilience, exhibited reduced staining intensity and morphological characteristics indicative of cellular stress and degeneration.

In contrast, Atelerix's WellReady™ maintained excellent structural integrity and cellular morphology of LabSkin's model throughout the time course. At both 48 and 72 hours, tissue quality was comparable to, or exceeded, that achieved with the conventional shipping method. Most notably, at extended storage durations of 96 and 120 hours, the model displayed only minimal evidence of degradation or cellular stress. The basal cell layer remained intact, the stratum corneum preserved its thickness and architecture, and the overall histological appearance closely resembled freshly prepared tissue. These findings demonstrate the ability of Atelerix technology to preserve tissue architecture, maintain cell membrane integrity, and significantly extend the viable transport window for complex tissue models.

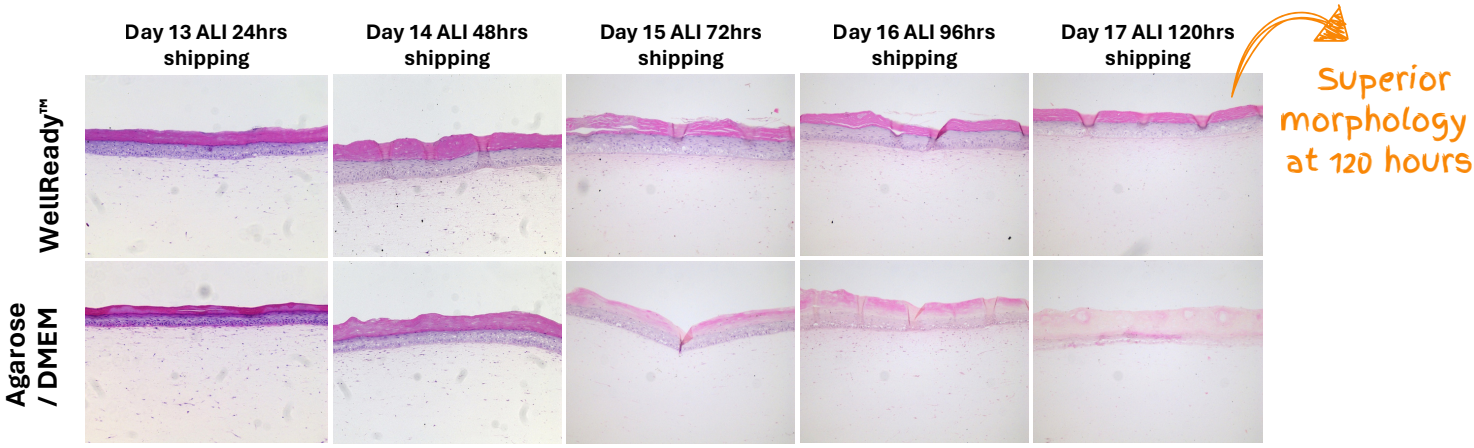


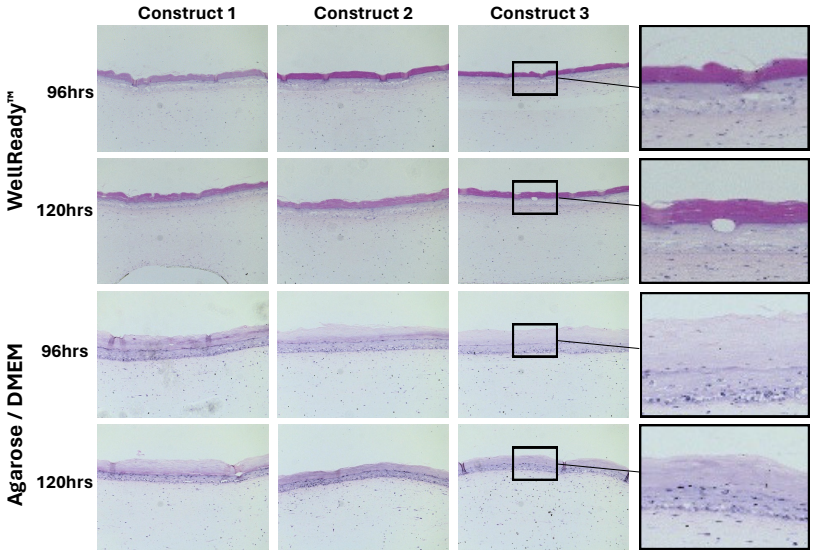
Figure 1. Preservation of Labskin's 3D Skin Full Thickness Model using WellReady™. H&E staining of LabSkin-S models grown over a 120hr period, with constructs fixed and stained at 24hr intervals. The LabSkin-S constructs were prepped for shipping for up to 5 days in either 1:1 Agarose:DMEM mix or WellReady™. Once the shipping period was complete, the models were moved to media for four hours then fixed. LabSkin-S constructs preserved in Atelerix's WellReady™ showed preserved integrity after 5 days shipment, while the medium control showed structural deterioration after 72h of shipment. Data generated by LabSkin.

"WellReady™ has given us the confidence to ship Labskin anywhere in the world. We no longer have to worry about customs delays or unexpected disruptions affecting our shipments, and our customers have found the recovery process simple and easy to use."

Nicola Kingswell
Scientific Director & Co-owner, Labskin

WELLREADY ENABLES AMBIENT-TEMPERATURE PRESERVATION OF LABKSIN MODEL STRUCTURE

To further validate performance at extended transport durations, additional tissue constructs were evaluated following the initial time-course study. The conventional agarose shipping control showed progressive degradation at later time points, consistent with previous observations of delayed shipments, where prolonged transit can compromise tissue quality and impact downstream data reliability. In contrast, Atelerix-preserved constructs maintained tissue integrity and cellular viability beyond the conventional shipping window, demonstrating improved preservation of complex tissue models during extended transport.



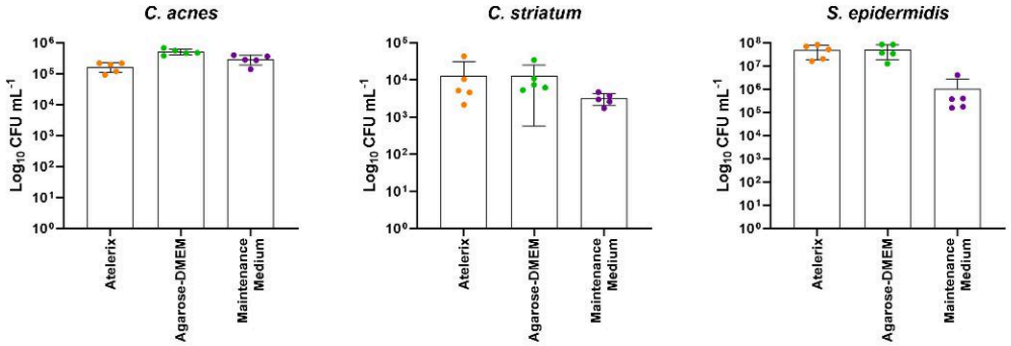
Key Findings:

- Tissue architecture remained intact with WellReady beyond 96 hours
- Superior preservation compared to agarose controls
- Maintained epidermal structure and dermal integrity

Figure 2. Extended preservation of complex skin models using Atelerix technology. Agarose-preserved constructs showed progressive degradation at 96 and 120 hours, with tissue thinning, gap formation, and reduced cellular staining. In contrast, Atelerix-preserved constructs maintained tissue architecture, cellular viability, and a well-preserved stratum corneum, with healthy fibroblast morphology supporting physiologically relevant skin structure.

WELLREADY ENABLES AMBIENT-TEMPERATURE PRESERVATION OF LABKSIN MODEL FUNCTION

A key advantage of LabSkin's model is its ability to support not only microbial application, but also microbial growth and interaction with living human skin cells, enabling a more physiologically relevant model of the skin microbiome. To assess whether Atelerix preservation maintains this functional capability, LabSkin models were evaluated following storage with a representative three-species microbiome consisting of Cutibacterium acnes, Corynebacterium striatum, and Staphylococcus epidermidis. Across preservation conditions, microbial viability and recovery were maintained, demonstrating that Atelerix supports preservation of both tissue structure and biological function.



- Microbial growth maintained
- Biological function preserved

Figure 3. Maintenance of microbiome functionality following Atelerix preservation. Colony-forming unit (CFU) analysis of LabSkin models inoculated with a representative three-species skin microbiome (C. acnes, C. striatum, and S. epidermidis) following preservation using Atelerix compared with the conventional shipping method. Comparable microbial recovery was observed across conditions, with no significant differences observed for C. acnes or C. striatum. A similar increase in S. epidermidis was observed across both shipping conditions, suggesting this effect was not specific to Atelerix preservation. These results demonstrate that Atelerix maintains the functional properties of complex skin models, enabling microbiome-host interaction studies following extended transport.

a case study using Atelerix WellReady™

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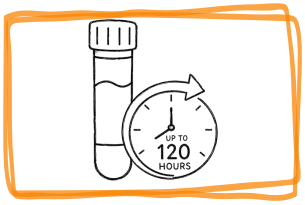
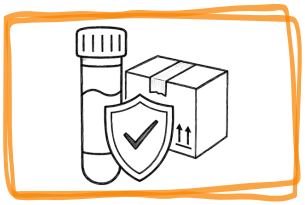
CUSTOMER IMPACT

Customer Benefits

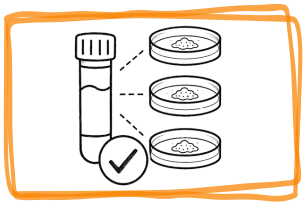
Using Atelerix WellReady™, LabSkin achieved:



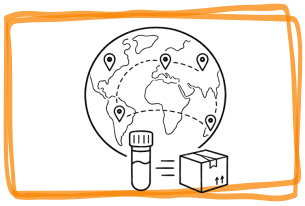
Extended viable shipping window (up to 120 hours)



Reduced risk of shipment failure



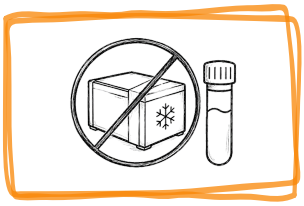
Improved reproducibility & reliability



Greater global accessibility

Enabling:

Expand international collaborations



Reduce dependency on cold chain logistics

Lower operational costs

Accelerate research timelines

Scientific Impact

Atelerix WellReady™ transforms the logistics of transporting complex biological models by enabling reliable ambient shipping. For advanced systems like Labskin, this represents a significant step forward in scalability and accessibility.

By removing key barriers to distribution, Atelerix supports broader adoption of physiologically relevant models across research, biotech, and cosmetic industries.

Why WellReady™

Atelerix develops innovative biomaterials that enable the safe ambient transport of living cells and tissues, preserving biological integrity while simplifying sample logistics.

Ready to evaluate WellReady™?

Put WellReady™ to the test in your own workflow.

Every new customer is covered by the Atelerix Money-Back Guarantee, allowing you to evaluate WellReady™ with confidence,* terms and conditions apply.

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