OASIS® Extracellular Matrix

COOK BIOTECH

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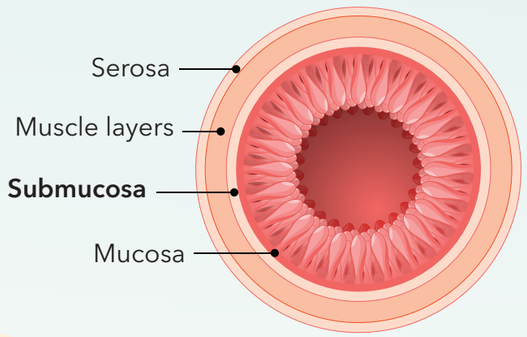
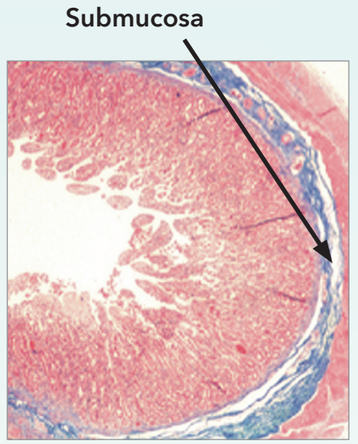
Visit the OASIS of wound management

Advanced tissue healing with a natural ECM

OASIS® Extracellular Matrix (OASIS ECM) is derived from porcine small intestinal submucosa (SIS), a structurally intact, naturally occurring extracellular matrix (ECM) located between the mucosal and muscular layers of the small intestine.





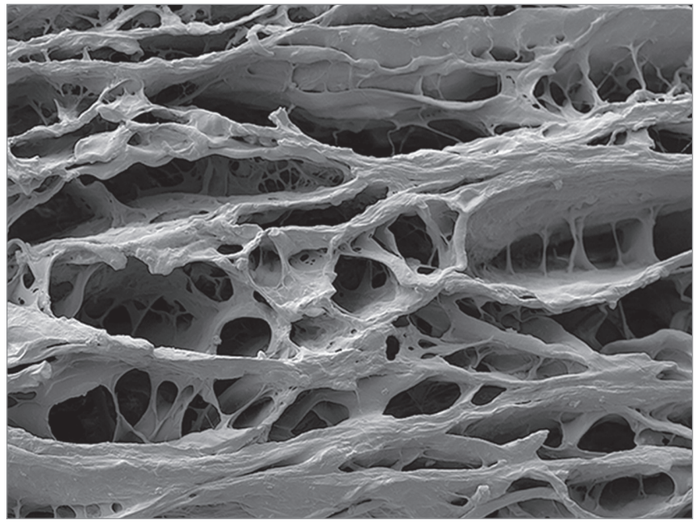
The ECM is the structural and functional material that supports cells in nearly all body tissue. It serves as the structure upon which cells orient and move in response to other cells and signals and provides a healthy environment necessary for tissue maintenance and repair.[1]

Tissue-repair processes occur through the coordinated activity of cells that reside within the ECM. Because the ECM is necessary for tissue maintenance, it also plays a major role in tissue repair.[1] Without a functional ECM, the body can no longer support normal cellular processes, and tissue repair fails to progress.[2]

Porcine SIS

SIS technology

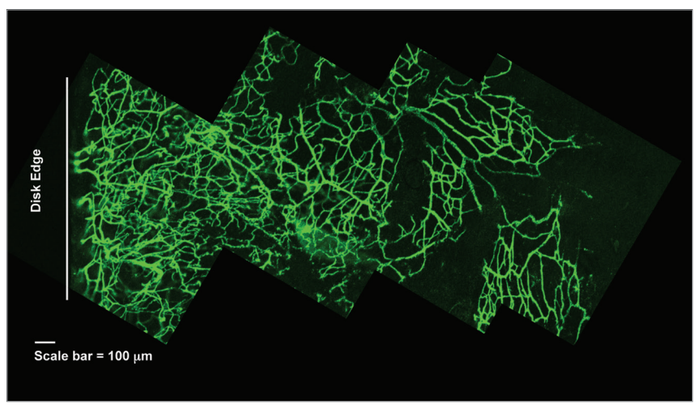
The **three-dimensional structure** of SIS allows for intimate cell contact, dynamic reciprocity (tissue-to-ECM contact), and blood vessel formation while supporting complete tissue remodelling.



Extracellular matrices promote epithelialisation. In microangiography obtained from mouse models, healthy angiogenesis is shown by green staining.[3]

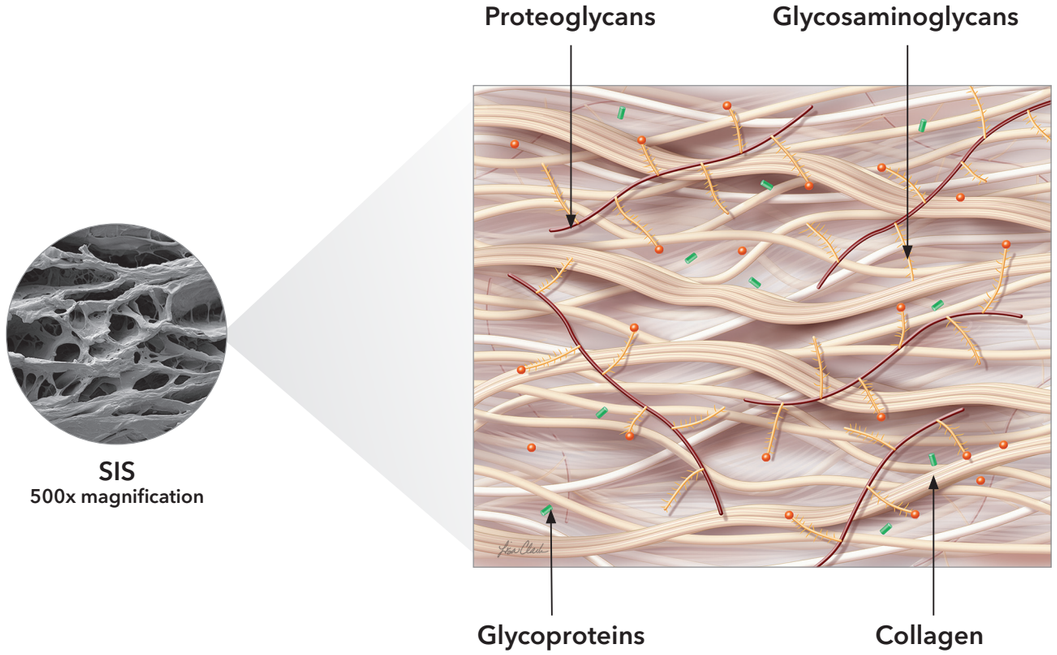
Angiogenesis is clinically important because it:

- Provides blood flow
- Provides nutrition
- Rids the body of waste products
- Allows the immune system to combat infection/bacteria



A natural ECM with complex composition

SIS is a structurally intact, naturally occurring ECM that contains collagen, glycosaminoglycans, proteoglycans, and glycoproteins.[4]

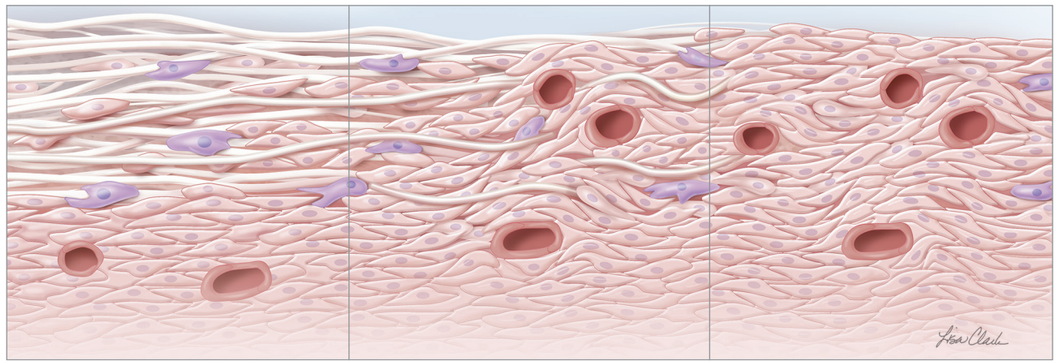


OASIS ECM includes collagen types I, III, IV, and VI, fibronectin, entactin, heparan sulphate proteoglycan, heparin, hyaluronic acid, and chondroitin. These components have been shown to have various functions in healthy dermis.

Matrix molecules[4-12]	Dermis	OASIS
Collagens		
Type I	✓	✓
Type III	✓	✓
Type IV	✓	✓
Type VI	✓	✓
Glycoproteins		
Fibronectin	✓	✓
Entactin	✓	✓
Proteoglycans		
Heparan sulphate proteoglycan	✓	✓
Glycosaminoglycans		
Heparin	✓	✓
Hyaluronic acid	✓	✓
Chondroitin	✓	✓

Tissue remodelling

SIS provides a natural ECM scaffold that allows the body to restore itself through the complex natural process of tissue remodelling. Tissue remodelling involves the **recruitment** of cells, the **renewal** of tissue composition, and the **reinforcement** of structural tissue architecture.[13] As the body heals, SIS is gradually remodelled and integrated into the body, leaving behind organised tissue that provides long-term strength.[14-16]



Recruit

The remodelling process starts immediately after application, when the body's inflammatory and progenitor cells populate the matrix and release cytokines and growth factors that recruit collagen-secreting fibroblasts.[17,18] In this phase, SIS acts as a scaffold material to support the population of the ECM with patient-derived cells.

Renew

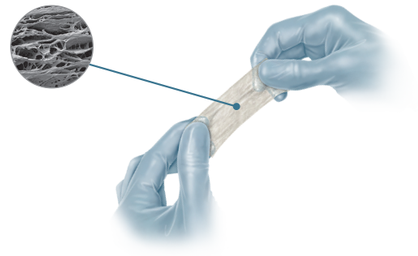
As remodelling progresses, host macrophages and fibroblasts in the newly populated matrix work together to renew the tissue through the complementary processes of phagocytosis, collagen deposition, and angiogenesis (blood vessel formation).[19] In this phase, SIS is gradually replaced by the patient's own tissue and cells.

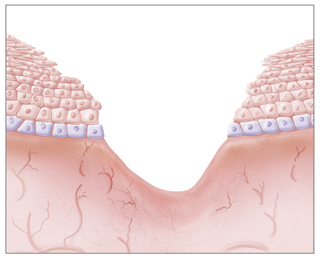
Reinforce

Over time, the resident fibroblasts secrete cytokines and growth factors to signal reinforcement of the deposited tissue through additional collagen deposition and maturation, resulting in a strong, repaired tissue.[3,14-16] In this phase, SIS is no longer needed because the patient's own collagen has gradually matured into a stable structure that has long-term strength but is entirely the patient's own.[14-16]

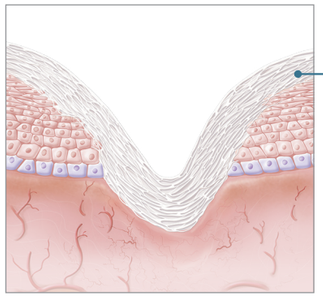
An off-the-shelf graft for wound healing

Though its microstructure is not visible to the eye, the ECM is a fundamental component of human tissue. Natural wound-repair processes occur through the coordinated activity of cells that reside within the ECM.

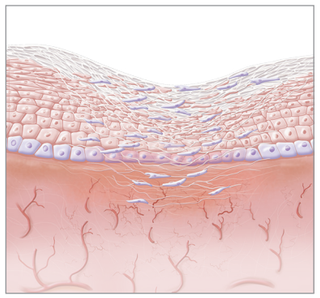




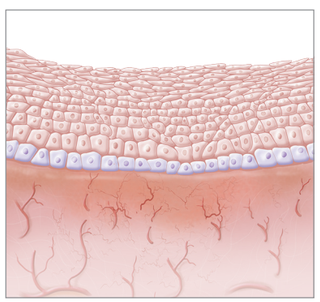
If the ECM in tissue is broken down, the body can no longer support normal cellular processes, and tissue repair fails to progress.[2]



OASIS ECM provides an intact biologic ECM that conforms to the shape of the wound bed, providing an environment that facilitates the body's natural wound healing.[20]



After application of OASIS ECM, the body's remodelling process begins supporting the ingrowth of cells and tissue vascularisation.[3]



As remodelling progresses, OASIS ECM is gradually replaced by an ECM and cells that are entirely the patient's own.[18]

Illustrations by Lisa Clark

APPLICATION

One technology, multiple applications

Extensive bone exposure after excision of skin malignant tumour (at the time of application)

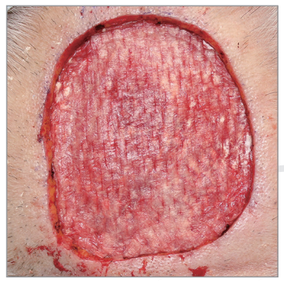


Photo courtesy of Ehime Prefectural Central Hospital

Surgical excision of basal cell carcinoma (at the time of application)

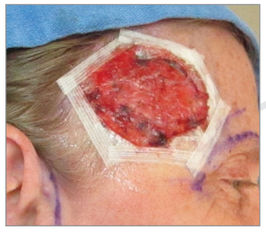


Photo courtesy of Dr Ally-Khan Somani

Second-degree chest burn (at the time of application)

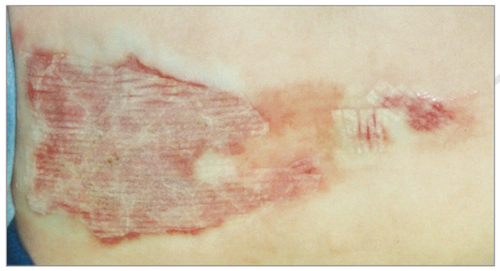
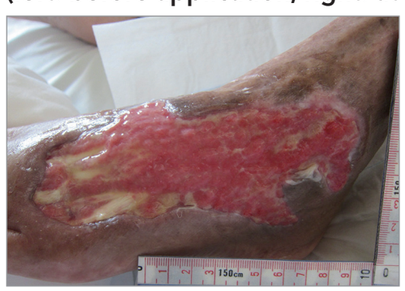
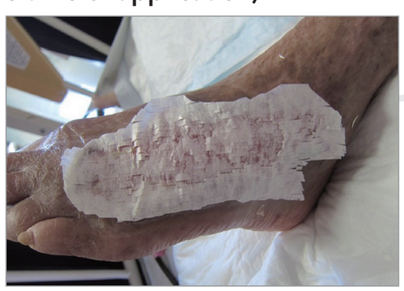


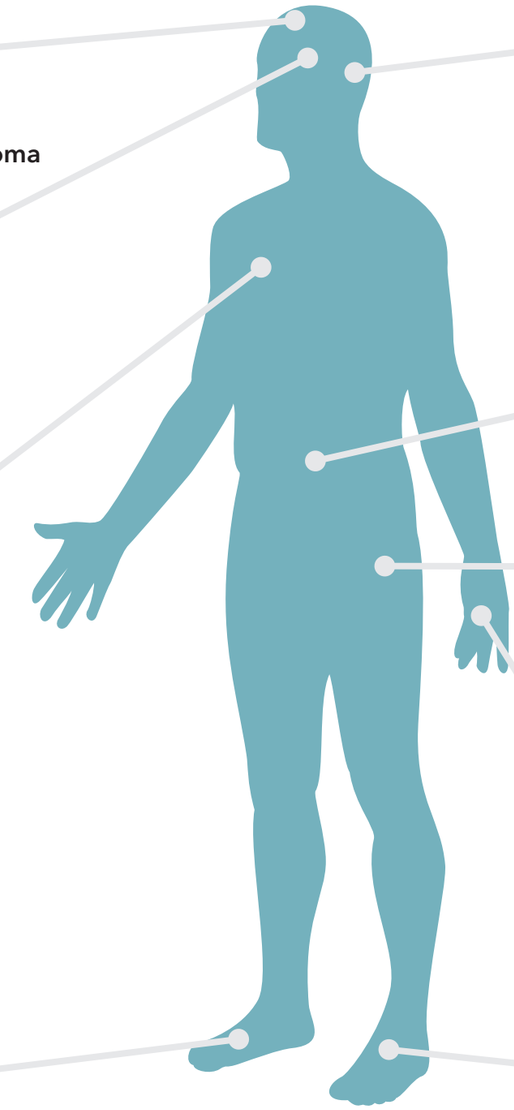
Photo courtesy of Dr Khoa Lai

Tendon exposure (left: before application, right: at the time of application)





Photos courtesy of Municipal Obama Onsen Hospital



Surgical excision of skin cancer (at the time of application)

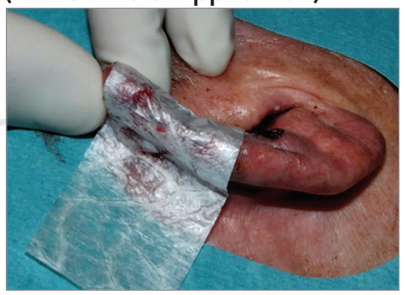


Photo courtesy of Prof. Falk Bechara

Abdominal wound dehiscence (at the time of application)

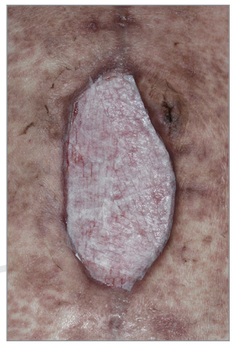


Photo courtesy of Ehime Prefectural Central Hospital

Sacral pressure ulcer (at the time of application)

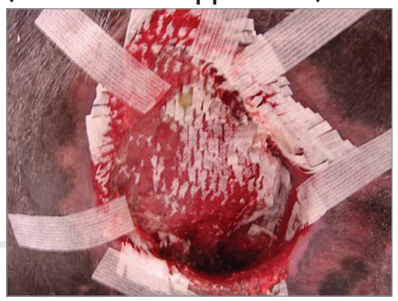


Photo courtesy of Dr Asaf Yalif

Burn (at the time of application)

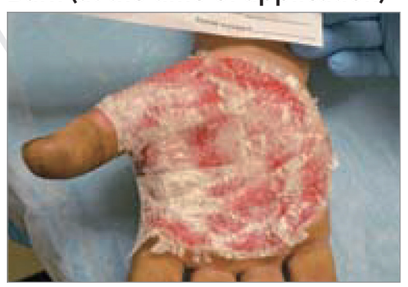


Photo courtesy of Dr Todd Sisto

Scald burn (at the time of application)

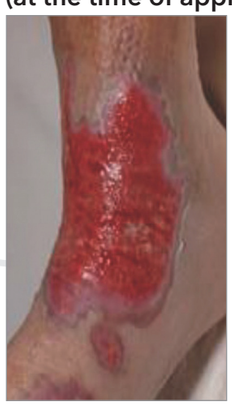
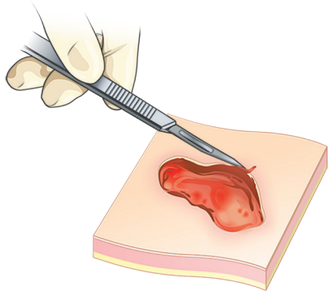


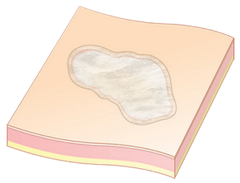
Photo courtesy of Dr Marianne E. Cinat

Ease of application



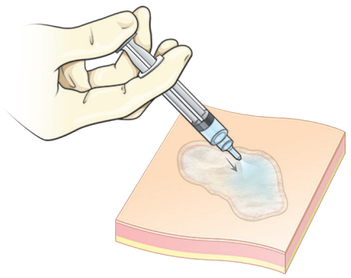
1

Prepare
Thoroughly debride the wound bed to remove any barriers that could prevent OASIS ECM from integrating directly with viable tissue (e.g., devitalised tissue, slough, debris, or coagulated blood). Ensure that excessive bleeding, excessive exudate, and any infection are controlled before applying OASIS ECM.



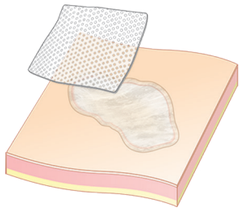
2

Apply OASIS ECM
Select the appropriate size of OASIS ECM. Position and cut the sheet to cover the wound surface, extending slightly beyond the wound edges. If multiple sheets are necessary to cover the wound, overlap the edges slightly. Smooth OASIS ECM into place to ensure the sheet is in contact with the underlying wound bed. OASIS ECM may be secured using the fixation method of choice.



3

Hydrate
Thoroughly hydrate OASIS ECM with sterile saline until it becomes transparent.



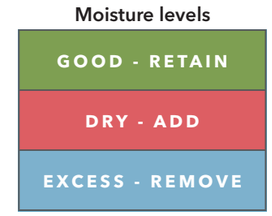
4

Protect with non-adherent dressing
Apply a porous, non-adherent dressing over OASIS ECM and affix using the fixation method of choice. This non-adherent dressing will help secure and protect OASIS ECM during secondary dressing changes while allowing for wound fluid management. To prevent damage to the newly incorporating OASIS ECM, ensure that the non-adherent dressing is changed only when ready to assess the wound, typically after 3–7 days.

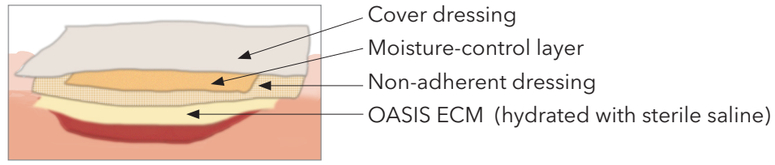
5

Control wound moisture
Assess the wound, and adjust the secondary dressings as appropriate to maintain the moist wound environment needed for successful integration of OASIS ECM.

- If satisfied with the wound's moisture, apply a moisture barrier (e.g., petroleum jelly).
- If the wound is too dry, apply a moisture-donating layer (e.g., hydrogel).
- If the wound is too wet, apply an absorptive layer (e.g., gauze, foam, alginate).

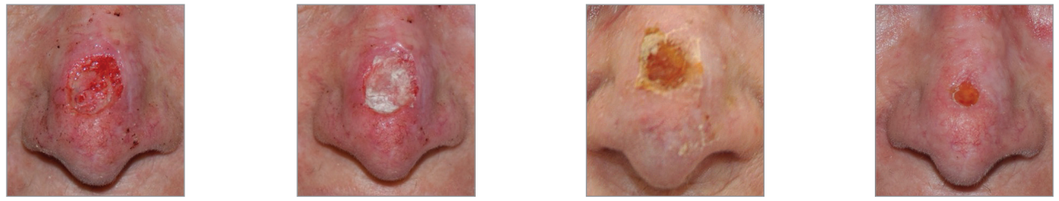


Apply a cover dressing to protect and secure all layers to the wound. Compression dressings and off-loading should be used if appropriate. After application of the cover dressing, the layering configuration should be as shown below.

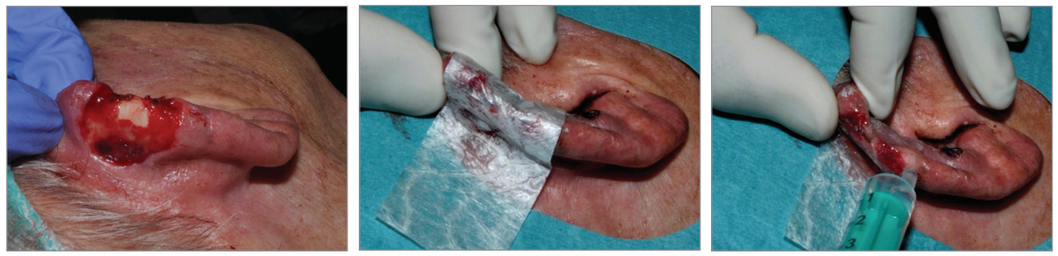


Versatility for challenging anatomical wounds

The flexability and ease of handling of OASIS ECM products make them especially suited for challenging surgical wounds. Their ability to be shaped and conform to the wound bed provides clinicians with multiple application options.



Photos courtesy of Prof. Falk Bechara



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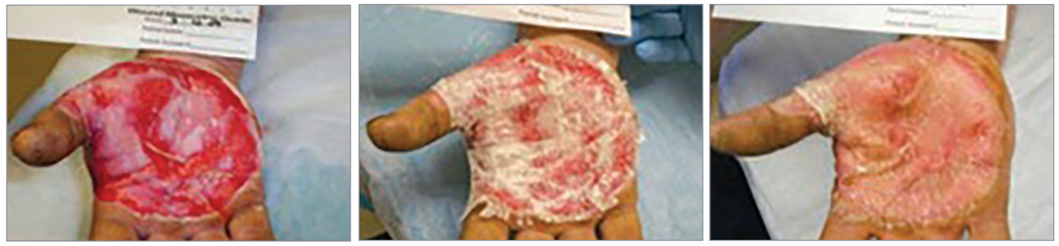


Photos courtesy of Dr Todd Sisto

Studied and proven

The technology behind OASIS ECM products is supported by more than 1,700 total publications. More than 700 publications describe clinical use, and 95 publications describe wound management.

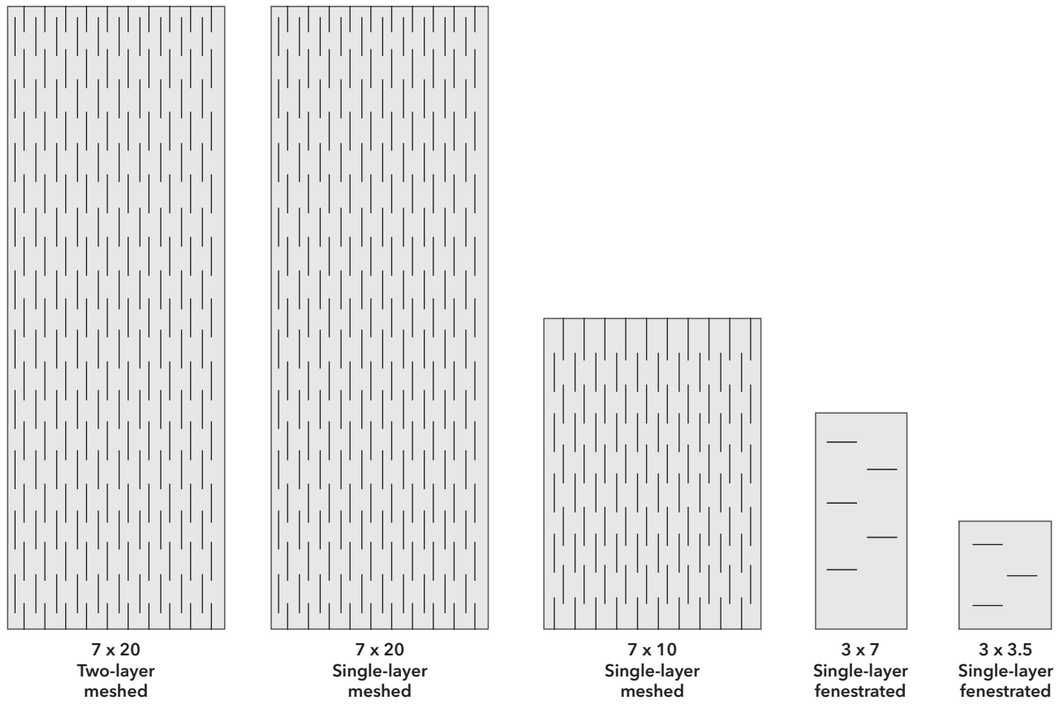
As of September 7, 2021

Ordering information

Order Number	Reference Part Number	Size cm	Qty per Box
G47319	C-ECM-1F-3X3.5-2	3 x 3.5	10
G47320	C-ECM-1F-3X7-2	3 x 7	10
G47321	C-ECM-1M-7X10-2	7 x 10	1
G47322	C-ECM-1M-7X20-2	7 x 20	1
G47318	C-ECM-2M-7X20-2	7 x 20	1

Not all products or indications are available in all jurisdictions.

Available in multiple sizes



For detailed product information, including indications for use, contraindications, and precautions, please consult the product's Instructions for Use (IFU) prior to use.

1. Clause KC, Barker TH. Extracellular matrix signaling in morphogenesis and repair. *Curr Opin Biotechnol*. 2013;24(5):830-833.
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7. Internal Cook Biotech Document: 10-040.
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18. Hodde J. Extracellular matrix as a bioactive material for soft tissue reconstruction. *ANZ J Surg*. 2006;76(12):1096-1100.
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