

Nerve Repair Solutions

Avance[®]
Nerve Graft



AxoGuard[®]
NerveConnector



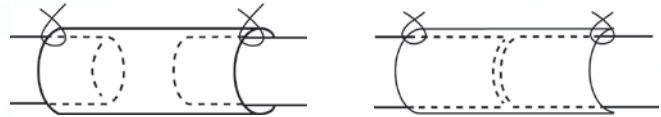
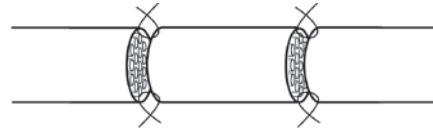
AxoGuard[®]
NerveProtector



 **AxoGen**[®]

It's time to rethink nerve repair.

Portfolio of Nerve Repair Solutions



Peripheral Nerve Injury Type

Avance® Nerve Graft

AxoGuard® Nerve Connector

AxoGuard® Nerve Protector

- Full Transection without gap
- Full Transection with gap
- Partial Transection
- Traction Injury
- Compression/Crush
- Traumatized Wound Bed

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Material Features

- Remodeled into patient's own tissue
- Body revascularizes the tissue during natural healing process
- Easy to suture
- Flexible, pliable
- Variety of sizes available
- Off-the-shelf option

Extracellular Matrix

Collagen or Synthetic

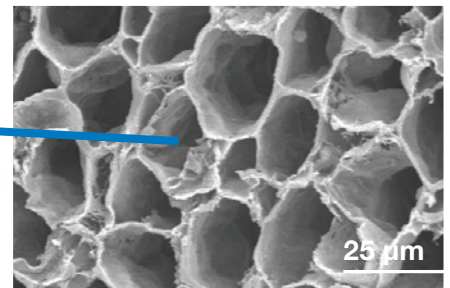
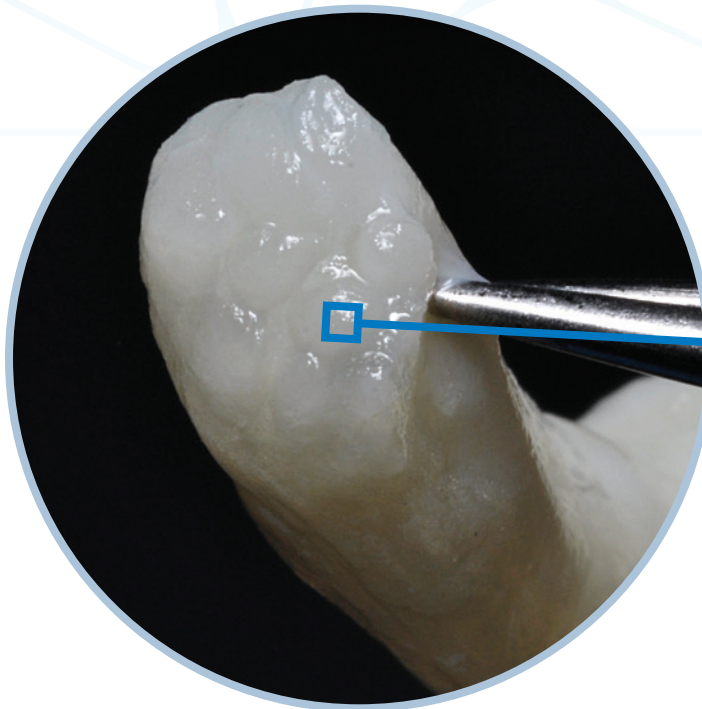
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○ = not representative of all materials

Avance[®]

Nerve Graft

Avance[®] processed nerve allograft for bridging severed peripheral nerves



Axons grow through multi-tubular structure of Avance[®] Nerve Graft.

Clinically studied off-the-shelf solution

- 87% meaningful recovery in sensory, mixed and motor nerves gaps in multi-center study¹
- Eliminates need for a second surgical site¹

Structural support for regenerating axons

- Offers the benefits of human peripheral nerve micro-architecture and handling²
- Cleansed and decellularized extracellular matrix (ECM)

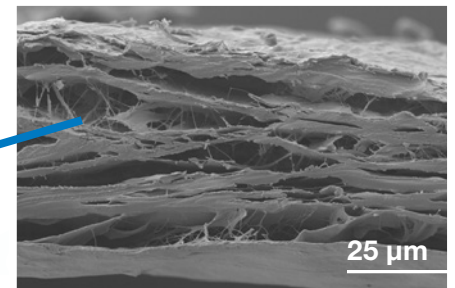
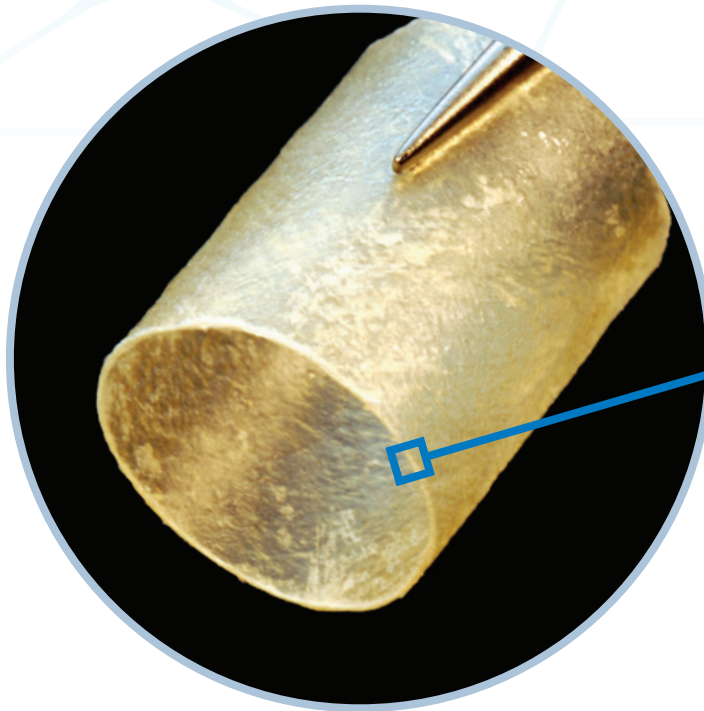
Revascularizes and remodels

- Revascularizes and remodels into patient's own tissue similar to autologous nerve³
- Preserves ECM to support natural healing response¹⁻³

AxoGuard® NerveConnector



Minimally processed porcine extracellular matrix for
connector-assisted coaptation



The multilaminar ECM of AxoGuard®
Nerve Connector provides
a 3-D scaffold that allows for
cell migration.⁴

Alternative to direct suture repair

- Can reduce surgery time by as much as 40%⁵
- Reduces the risk of forced fascicular mismatch^{6,7}

Alleviates tension at critical zone of regeneration

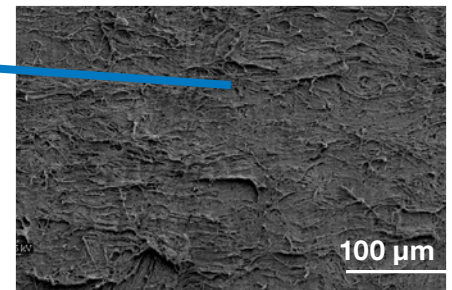
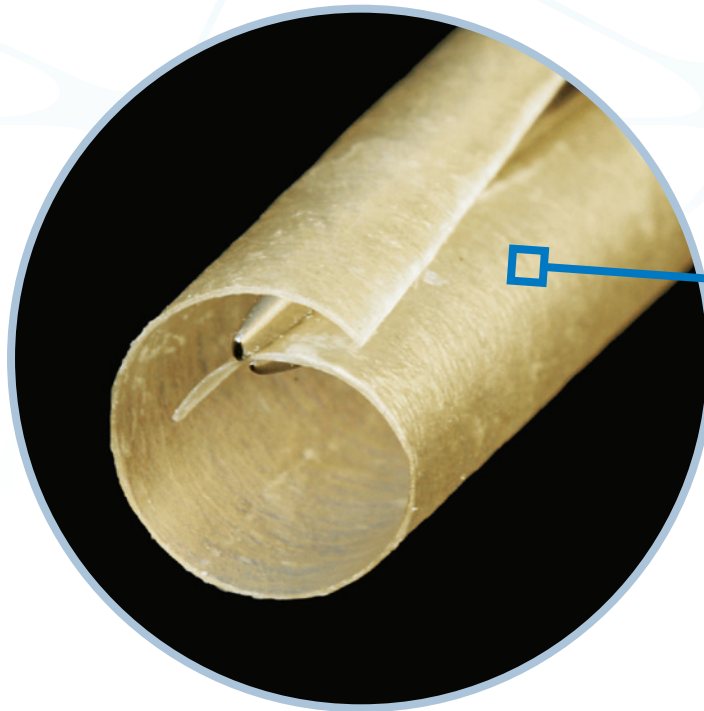
- Disperses tension across repair site⁸
- Moves suture inflammation away from coaptation face^{5,8}

Revascularizes and remodels

- Incorporates ECM into patient's own tissue⁹
- Supports natural wound healing⁴

AxoGuard® Nerve Protector

Minimally processed porcine extracellular matrix for wrapping and protecting injured peripheral nerve



AxoGuard® Nerve Protector minimizes soft tissue attachments along inner and outer surfaces.

Protects repair site from surrounding tissue

- Minimizes soft tissue attachments⁹
- Allows for diffusion of nutrients through the material⁴

Allows nerve gliding

- Minimizes risk of entrapment⁹
- Creates a barrier between repair and surrounding tissue bed⁹

Revascularizes and remodels

- Restores damaged soft tissue layers^{4,9}
- Supports natural wound healing⁴

1 Brooks DN, et al. Processed nerve allografts for peripheral nerve reconstruction: A multicenter study of utilization and outcomes in sensory, mixed and motor nerve reconstructions. *Microsurg.* 2012;32:1-85.
2 Johnson PJ, et al. Nerve endoneurial microstructure facilitates uniform distribution of regenerative fibers: A post hoc comparison of midgraft nerve fiber densities. *J Reconstr Microsurg.* 2011;27:83-90.
3 Whitlock E, et al. Processed allograft and Type I collagen conduits for repair of peripheral nerve gaps. *Muscle & Nerve.* 2009;6:787-799.
4 Nihsen ES, et al. Bioactivity of small intestinal submucosa and oxidized regenerated cellulose/collagen. *Adv Skin Wound Care.* 2008;21(10):479-486.
5 Boeckstyns MEH, et al. Collagen conduit versus microsurgical neurorrhaphy: 2-year follow-up of a prospective, blinded clinical and electrophysiological multicenter randomized, controlled trial. *J Hand Surg.* 2013;38:2405-2411.
6 Evans PJ, et al. Selective reinnervation: a comparison of recovery following microsuture and conduit nerve repair. *Brain Research.* 1991;559(2):315-321.
7 Brushart TM and Seiler WA. Selective reinnervation of distal motor stumps by peripheral motor axons. *Exp Neurol.* 1987;97:289-300.
8 Schmidhammer R, et al. Alleviated tension at the repair site enhances functional regeneration: The effect of full range of motion mobilization on the regeneration of peripheral nerves—Histologic, electrophysiologic, and functional results in a rat model. *J Trauma.* 2004;56(3):571-583.
9 Kokkalis ZT, et al. Assessment of processed porcine extracellular matrix as a protective barrier in a rabbit nerve wrap model. *J Recon Microsurg.* 2011;27(1):19-28.

Avance® Nerve Graft

Processed Nerve Allograft

Code	Dimensions	Approximate Size
111215	1–2mm x 15mm	
211215	2–3mm x 15mm	
311215	3–4mm x 15mm	
411215	4–5mm x 15mm	
111230	1–2mm x 30mm	
211230	2–3mm x 30mm	
311230	3–4mm x 30mm	
411230	4–5mm x 30mm	
111250	1–2mm x 50mm	
211250	2–3mm x 50mm	
311250	3–4mm x 50mm	
411250	4–5mm x 50mm	
111270	1–2mm x 70mm	
211270	2–3mm x 70mm	
311270	3–4mm x 70mm	
411270	4–5mm x 70mm	

Actual sizes may vary. Sterile, packaged individually

AxoGuard® Nerve Connector

Nerve Coaptation Aid

Code	Dimensions	Approximate Size
AGX110	1.5mm x 10mm	
AGX210	2mm x 10mm	
AGX310	3mm x 10mm	
AGX410	4mm x 10mm	
AGX510	5mm x 10mm	
AGX610	6mm x 10mm	
AGX710	7mm x 10mm	
AGX115	1.5mm x 15mm	
AGX215	2mm x 15mm	
AGX315	3mm x 15mm	
AGX415	4mm x 15mm	
AGX515	5mm x 15mm	
AGX615	6mm x 15mm	
AGX715	7mm x 15mm	

Sterile, packaged individually

AxoGuard® Nerve Protector

Nerve Wrap

Code	Dimensions	Approximate Size
AG0220	2mm x 20mm	
AG0320	3.5mm x 20mm	
AG0520	5mm x 20mm	
AG0720	7mm x 20mm	
AG1020	10mm x 20mm	
AG0340	3.5mm x 40mm	
AG0540	5mm x 40mm	
AG0740	7mm x 40mm	
AG1040	10mm x 40mm	

Sterile, packaged individually

Avance® Nerve Graft

REGULATORY CLASSIFICATION: Avance® Nerve Graft is processed and distributed in accordance with US FDA requirements for Human Cellular and Tissue-based Products (HCT/P) under 21 CFR Part 1271 regulations, US State regulations and the guidelines of the American Association of Tissue Banks (AATB). Additionally, international regulations are followed as appropriate. Avance® Nerve Graft is to be dispensed only by or on the order of a licensed physician.

INDICATIONS FOR USE: Avance® Nerve Graft is processed nerve allograft (human) intended for the surgical repair of peripheral nerve discontinuities to support regeneration across the defect.

CONTRAINDICATIONS: Avance® Nerve Graft is contraindicated for use in any patient in whom soft tissue implants are contraindicated. This includes any pathology that would limit the blood supply and compromise healing or evidence of a current infection.

AxoGuard® Nerve Connector

INDICATIONS FOR USE: United States: AxoGuard® Nerve Connector is intended for the repair of peripheral nerve discontinuities where gap closure can be achieved by flexion of the extremity. Indication for use may vary in countries outside the United States. Please see Package Insert for specific indications in the country of use.

CONTRAINDICATIONS: This device is derived from a porcine source and should not be used for patients with known sensitivity to porcine material.

AxoGuard® Nerve Protector

INDICATIONS FOR USE: United States: The AxoGuard® Nerve Protector is indicated for the repair of peripheral nerve injuries where there is no gap. The device is supplied sterile and is intended for one-time use. Indication for use may vary in countries outside the United States. Please see Package Insert for specific indications in the country of use.

CONTRAINDICATIONS: This device is derived from a porcine source and should not be used for patients with known sensitivity to porcine material.

TO ORDER, CONTACT YOUR AXOGEN REPRESENTATIVE OR AXOGEN CUSTOMER CARE

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LB-139 R06