

5. Handle Avance<sup>®</sup> Nerve Graft by outer most epineurium and avoid crimping or crushing the graft.
6. Implant Avance<sup>®</sup> Nerve Graft using the same tensionless surgical technique used when implanting a nerve autograft. Either end of the processed nerve allograft can be coapted to the proximal stump of the host nerve.
7. Destroy any thawed allograft tissue not used in the surgical procedure in accordance with local, state and federal or country regulations for disposal of human tissue.
8. Complete and send the Tissue Utilization Report (TUR) back to AxoGen.

#### TISSUE UTILIZATION REPORT (TUR)

Each Avance<sup>®</sup> Nerve Graft package contains a Tissue Utilization Report (TUR). **In accordance with US FDA, US Joint Commission and international requirements, a TUR should be completed for each Avance<sup>®</sup> Nerve Graft used in the procedure and returned to AxoGen or other representative as described on the TUR.**

Record the distinct HCT/P identification code in hospital or facility records and in the patient's file. Complete all information on the card, affix ONE (1) peel-off label of each Avance<sup>®</sup> Nerve Graft used, seal and return to AxoGen or other representative as described on the TUR.

It is the responsibility of the health care institution to maintain recipient records for the purpose of tracking tissue post-implantation. The Tissue Utilization Report is **NOT** intended to be a substitute for a facility's internal tissue transplantation tracking system.

#### POTENTIAL COMPLICATIONS

The following adverse events are anticipated and may potentially occur during treatment:

- mild incisional redness;
- tenderness of surgical area;
- mild edema of surgical area;
- controllable pain at surgical area;
- decreased sensation; and,
- numbness

These adverse events are considered expected and are not required to be recorded unless they increase in severity.

Inherent risks of any surgical procedure include, infection, blood loss, and anesthesia associated complications. Complications specific to nerve reconstruction include pain, decreased or increased sensitivity, and impaired motor or sensory function. As with all peripheral nerve surgery, there is a risk of failure of the nerve to regenerate.

Hypersensitivity, allergic reactions, or other adverse immune responses have not been observed in preclinical studies or reported clinically with the use of Avance<sup>®</sup> Nerve Graft. Because Avance<sup>®</sup> Nerve Graft is composed of proteins such as collagen and laminin, the potential may exist for such reactions.

Avance<sup>®</sup> Nerve Graft is processed human nerve tissue. As with all donated human tissue products the risk for transmission of communicable disease does exist. Robust donor screening and selection criteria, completed as required by the FDA and in accordance with AATB, state, and federal guidelines, processing controls, and terminal sterilization with gamma irradiation greatly reduce but cannot totally eliminate this risk. Per AATB standards, communicable disease testing is performed by a laboratory registered with FDA to perform donor testing and certified to perform such testing on human specimens under the US Clinical Laboratory Improvement Amendments (CLIA) of 1988 and 42 CFR Part 493, or that has met equivalent requirements as

determined by the Centers for Medicare and Medicaid Services (CMS). Testing is conducted using test kits approved by the US FDA. As disease screening methods are limited, certain diseases may not be detected. The following complications of tissue transplantation may occur:

- Transmission of diseases of unknown etiology;
- Transmission of known infectious agents including, but not limited to viruses, bacteria, and fungi.

#### DISPOSAL

Dispose of Avance<sup>®</sup> Nerve Graft in accordance with local, state and federal or country regulations for disposal of human tissue.

#### REFERENCES

1. ISO 11137:2006 Sterilization of health care products — Radiation guidelines
2. ISO 10993:2003 Biological evaluation of medical devices








#### INQUIRIES

For additional information, to place an order, or to report errors, accidents or adverse reactions, contact:

If in the US: AxoGen Customer Care  
 Phone: 888.AxoGen1 (888.296.4361)  
 Email: CustomerCare@AxoGenInc.com

Customers outside of US: Contact the AxoGen authorized distributor servicing your facility, email AxoGen Customer Care or contact AxoGen directly in the US at (386) 462.6800.

#### Symbols used on Product Packaging

	Product Code
	Lot Number
	Temperature Limit
	Do Not Reuse/Resterilize
	Contents are sterile unless outer package is damaged, Radiation Sterilization
	See Instructions For Use
	Expiration Date

This product, its manufacture and use is covered by one or more of U.S. Patent No. 6,972,168, U.S. Patent No. 7,402,319, U.S. Patent No. 7,732,200, Japanese Patent No. 4749667, Europe Patent No. EP1425390 and other patents pending

Canada CTO Registration #100065

Avance<sup>®</sup> Nerve Graft is processed in the United States by:



13631 Progress Blvd., Suite 400  
 Alachua, FL 32615  
[www.AxoGenInc.com](http://www.AxoGenInc.com)

Avance<sup>®</sup> Nerve Graft is a registered trademark of AxoGen.  
 Tyvek<sup>®</sup> is a registered trademark of E.I. DuPont De Nemours & Co.  
 LB-211 R07



## Instructions for Use



Customer Care  
 Direct Dial: 888-AxoGen1 (888.296.4361)  
 International: 386.462.6800  
[CustomerCare@AxoGenInc.com](mailto:CustomerCare@AxoGenInc.com)

## DESCRIPTION

Avance® Nerve Graft is processed nerve allograft intended for bridging nerve discontinuities to support axon regeneration. It is decellularized and cleansed extracellular matrix from donated human peripheral nerve. The cleansing process preserves the inherent microtubular structure of the native nerve extracellular matrix, while clearing the cells, cellular debris and certain proteins such as chondroitin sulfate proteoglycans (CSPG).

Avance® Nerve Graft is implanted and connects the proximal and distal ends of a transected nerve. The processed nerve allograft serves as a scaffold allowing regenerating axons to grow into the patient's distal nerve tissue toward the target muscle or skin.

Avance® Nerve Graft offers structural characteristics and handling similar to nerve autograft; pliability of soft tissue, an intact epineurium to suture the nerve graft in place, and intact endoneurial tubes for the axons to grow through.

Avance® Nerve Graft is supplied sterile in a variety of lengths and diameters to allow the surgeon to match the size of the injured nerve and provide a tensionless repair of the defect. It is for single patient use only. Approximate graft lengths and diameters are listed on the package label.

## 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 standards 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.

## WARNINGS

Careful donor screening, laboratory testing, tissue processing, and gamma irradiation have been utilized to minimize the risks of transmission of relevant communicable diseases to the patient. As with any processed human donor tissue, Avance® Nerve Graft cannot be guaranteed to be free of all pathogens.

Do not reuse or re-sterilize Avance® Nerve Graft and do not refreeze the graft once it has been thawed.

## DONOR RECOVERY AND SCREENING

After consent for donation is obtained, surgical recovery of the peripheral nerve tissue is performed in an aseptic manner by FDA registered and state licensed (where required) US tissue banks. Donor eligibility is carefully evaluated as required by the US FDA and US State regulations. Additionally, donor eligibility is determined in accordance with AATB standards and appropriate international regulations. Tissue donors are evaluated for high risk behaviors and relevant communicable diseases. Evaluation includes a review of the donor medical and social history, a physical assessment of the donor at time of tissue recovery, a review of

an autopsy (if performed), serology testing, tissue recovery microbiology, and cause of death.

Each donor is tested and shown to be **negative or nonreactive** for the following:

- Human Immunodeficiency Virus (HIV) Type 1 Antibody
- Human Immunodeficiency Virus (HIV) Type 2 Antibody
- Hepatitis C Virus (HCV) Antibody
- Hepatitis B Virus (HBV) Surface Antigen
- Hepatitis B Virus (HBV) Core Antibody (total)
- Syphilis Rapid Plasma Reagin or Treponemal Specific Assay
- Human Immunodeficiency Virus (HIV) Nucleic Acid Test (NAT)
- Hepatitis C Virus (HCV) Nucleic Acid Test (NAT)
- Hepatitis B Virus (HBV) Nucleic Acid Test (NAT)

Additional testing may be performed, as required by local authorities in international markets. If required, each donor is tested and shown to be **negative or nonreactive** for the following:

- Human T-Cell Lymphotropic Virus (HTLV) Type I Antibody
- Human T-Cell Lymphotropic Virus (HTLV) Type II Antibody

All testing is performed by a laboratory registered with FDA to perform donor testing and certified to perform such testing on human specimens under the US Clinical Laboratory Improvement Amendments (CLIA) of 1988 and 42 CFR Part 493, or that has met equivalent requirements as determined by the Centers for Medicare and Medicaid Services (CMS). The testing is conducted using test kits approved by the US FDA.

The Medical Director of AxoGen (US state licensed) has determined that the tissue is suitable for transplantation in humans. Records of all testing and medical releases are maintained by AxoGen.

## PROCESSING

Avance® Nerve Graft is processed in controlled environments using Good Tissue Practice (GTP) methods designed to prevent contamination and cross contamination of the tissue. Processing involves the use of proprietary physiological buffers, enzyme and surfactants and the processed tissue may contain traces of these processing agents. The cleansing process preserves the inherent microtubular structure of the native nerve extracellular matrix while clearing the cells, cellular debris and certain proteins such as chondroitin sulfate proteoglycans (CSPG). After completion of processing, Avance® Nerve Graft is sized, packaged and sterilized using gamma irradiation in accordance with ISO 11137<sup>1</sup> guidelines.

Avance® Nerve Graft has been tested in accordance with ISO 10993<sup>2</sup> standards. The test results demonstrated that the processed nerve allograft is biocompatible.

The processed nerve allograft tissue will naturally vary in color from white, off-white, pink, pale pink, and yellow to pale yellow. Occasional dark spots or localized discoloration is a normal occurrence.

## HOW SUPPLIED

Avance® Nerve Graft is placed into a plastic tray and then inserted into chevron pouches. Each chevron pouch is heat-sealed to provide a sterile barrier and each pouch has a chevron seal. The outer chevron pouch is foil to provide a moisture barrier. Approximate graft lengths and diameters are listed on the package label. Avance® Nerve Graft is irradiated and supplied frozen. Contents of the foil package are sterile unless the package is opened or damaged.

## TRANSPORT AND STORAGE

Avance® Nerve Graft is shipped frozen on dry ice via validated shipping containers. Immediately upon receipt, verify presence of dry ice in shipper and place product in freezer at or below -40°C (-40°F). Keep product frozen until use. If no dry ice is present, contact AxoGen Customer Care as product may have thawed. Expiration date is three (3) years from date of packaging provided that the Avance® Nerve Graft has been stored at temperatures at or below -40°C (-40°F). **See product label for expiration date. Expiration date of the product is the end of the month for the month and year outlined on the product label.**

## Temporary storage conditions

Temporary storage of Avance® Nerve Graft at -20°C to -40°C (-4°F to -40°F) is limited to six (6) months total, and grafts stored at this temperature range must then be transferred to -40°C (-40°F) or colder freezer, used or discarded.

It is the responsibility of the health care institution to track the expiration date of the Avance® Nerve Graft and ensure that the product is stored properly.

## WARNING

If the outer foil chevron pouch and/or inner Tyvek® chevron pouch is compromised (shows evidence of being torn or opened in any manner), **DO NOT USE** the Avance® Nerve Graft and notify AxoGen Customer Care immediately.

## INSTRUCTIONS FOR USE

1. Follow standard operating procedures for exposure and mobilization of the injured peripheral nerve.
2. Determine the injured nerve diameter and length in millimeters (mm) using a suitable measuring instrument.
3. Select Avance® Nerve Graft(s) of comparable diameter to match the native nerve and of sufficient length to ensure a tension free repair.
4. To prepare the Avance® Nerve Graft,
  - a. Remove the foil chevron pouch containing Avance® Nerve Graft, Instructions for Use, patient record labels and Tissue Utilization Report (TUR) from the package.
  - b. Compare the distinct lot number on the foil chevron pouch with the lot number on the package. If the numbers do not match, **DO NOT USE** the product and notify AxoGen Customer Care immediately.
  - c. Using standard aseptic technique, peel open the outer foil chevron pouch and pass the inner Tyvek® chevron pouch to the sterile field for further handling.
  - d. Open the Tyvek® chevron pouch and remove the plastic tray.
  - e. Open the plastic tray and fill the pre-molded thawing reservoir with room temperature sterile saline or sterile Lactated Ringer's Solution (LRS). Do not heat the graft or add heated saline or LRS to the graft.
  - f. Allow Avance® Nerve Graft to thaw completely before use which will take approximately 5 – 10 minutes. Once thawed, Avance® Nerve Graft is soft and pliable throughout. Avance® Nerve Graft must be either implanted or discarded within 12 hours. **NEVER IMPLANT A PARTIALLY OR FULLY FROZEN PRODUCT.**