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K103081

MAR - 2 2012

510(k) Summary

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Date Summary was prepared:	March 2nd, 2012
Trade/Proprietary Name:	Cova™ORTHO-NERVE
Classification Name:	Nerve Cuff
Product Code:	JXI
Regulation Number:	21 CFR 882.5275
Device Classification:	Class II
Predicate Devices	Collagen Nerve Wrap (K060952) NeuraWrap™ (K041620) NeuroGen™ (K011168)

Device Description

Cova™ORTHO-NERVE is a pure collagen membrane designed to be used as a barrier to allow guided healing along distinct anatomical planes. It is completely resorbable within a time frame that is compatible with healing. The membrane is obtained by standardized, controlled manufacturing processes. Cova™ORTHO-NERVE is further sterilized in double-pouches by gamma-irradiation.

Cova™ORTHO-NERVE membranes are designed to be resorbable, non inflammatory and biocompatible for uses to treat peripheral nerve injuries. When wetted, the membrane is conformable, elastic and easy to handle. It can be used alone or, if needed, it can be

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sutured in place. Cova™ORTHO-NERVE is provided in rectangular sheets of 15 x 25 mm, 20 x 30 mm, 30 x 40 mm and 40 x 60 mm. Furthermore, the device can be easily trimmed or shaped to the appropriate size, without tearing or fragmenting, to fit the zone to be treated.

Intended Use

Cova™ORTHO-NERVE is indicated for the repair of peripheral nerve injuries in which there is no gap or where a gap closure can be achieved by flexion of the extremity.

Basis for Substantial Equivalence

The intended use, product design, composition, physical structure and target population of Cova™ORTHO-NERVE resorbable collagen membranes are substantially equivalent to the FDA cleared and legally marketed predicate devices Collagen Nerve Wrap (K060952), NeuraWrap™ (K041620) and NeuroGen™ (K011168). Similarities are presented in Table 1.

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Table 1. Comparison of Cova™ORTHO-NERVE with the predicate devices

Medical Device	Cova™ ORTHO-NERVE	Collagen Nerve Wrap	NeuraWrap™ Nerve Protector	NeuroGen™ Nerve Guide
510(k)	K103081 (tbd)	K060952	K041620	K011168
Class	JXI	JXI	JXI	JXI
Composition	Type I Collagen	Type I collagen	Type I collagen	Type I collagen
Origin	Porcine	Bovine	Bovine	Bovine
Intended use	Indicated for the repair of peripheral nerve injuries in which there is no gap or where a gap closure can be achieved by flexion of the extremity.	Indicated for the management of peripheral nerve injuries in which there has been no substantial loss of nerve tissue and where gap closure can be achieved by flexion of the extremity.	Indicated for the management of peripheral nerve injuries in which there has been no substantial loss of nerve tissue.	Indicated for the repair of peripheral nerve discontinuities where gap closure can be achieved by flexion of the extremity.
Characteristics	Membrane, rollable if needed Easy to manipulate Flexible Smooth Wettable Hemostatic Cell-occlusive	Pre-rolled membrane Easy to manipulate Flexible Smooth Wettable Hemostatic Cell-occlusive	Pre-rolled membrane Easy to manipulate Flexible Smooth Wettable Hemostatic Cell-occlusive	Tubular Easy to manipulate Flexible Smooth Wettable Hemostatic Cell-occlusive
Biocompatibility	Established	Established	Established	Established
Non-pyrogenic	Yes	Yes	Yes	Yes
Resorbable	Yes	Yes	Yes	Yes
Suturable	Yes	Yes	Yes	Yes
Sterilization	Gamma irradiation	Gamma irradiation	Ethylene Oxide (EtO)	Ethylene Oxide (EtO)
Reusable	Single-use	Single-use	Single-use	Single-use
Shelf-life	24 months	36 months	36 months	36 months
Packaging	Double-peel packages	Double-peel packages	Double-peel packages	Double-peel packages

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Any differences in technological characteristics between the Cova™ORTHO-NERVE and the predicate devices do not raise any new issues of safety or efficacy. The performance and safety of the material used was evaluated. The collective results have demonstrated that the Cova™ORTHO-NERVE is substantially equivalent to the respective predicate devices with regard to safety and efficacy.

Summary of Non-Clinical Data

Biocompatibility

Biocompatibility tests were selected in accordance with ISO-10993 – 1 (Biological Evaluation of Medical Devices) guidelines for a permanent implant in contact with tissue/bone. All studies were conducted pursuant to 21 CFR, Part 58, Good Laboratory Practices. The table 2 provides a summary of the biocompatibility test results and conclusions.

Table 2: Biocompatibility Testing Summary for Cova™ORTHO-NERVE

Test	Test Method	Results
Cytotoxicity	ISO Direct contact Cytotoxicity Assay	Non-cytotoxic
Sensitization	ISO Guinea pig Maximization Test with device extracts (saline and sesame oil extracts)	No evidence of sensitization
Acute Intracutaneous Reactivity	ISO Acute Intracutaneous Reactivity Test in rabbits with device extracts (saline and sesame oil extracts)	No evidence of irritation
Acute Systemic Toxicity	ISO Acute Systemic Toxicity in Mice with device extracts (saline and sesame oil extracts)	No mortality or evidence of systemic toxicity
Rabbit Pyrogen Study	USP Material-mediated Rabbit Pyrogen Test with saline extract of the device	No evidence of material-mediated pyrogenicity
Hemolysis	Hemolysis Test by direct contact with human red blood cells	No hemolytic activity
Genotoxicity	ISO Ames Mutagenicity Assay with device extracts (saline and ethanol extracts)	No evidence of mutagenicity
Genotoxicity	ISO Mouse bone marrow micronucleus with device extracts (saline and sesame oil extracts)	No evidence of clastogenicity

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Implantation/Absorption	Subcutaneous implantation in rats	Absorption of material by 13 weeks No inflammation observed
Implantation (safety and performance)	*In vivo* safety and performance study in rats after 3, 30 and 90 days	Protection during nerve repair No fibrous peri-nervous tissue was observed after 3, 60 or 90 days.
Subchronic / chronic toxicity	13-Week systemic toxicity and local Tolerance Study in rats following subcutaneous implantation	No adverse tissue reaction to the implant up to 13 weeks of implantation No systemic toxicity

Viral Inactivation Study

Viral Inactivation steps were validated for collagen extracted from tissues used in the manufacture of the membranes. For the validation, different viruses were selected according to their physico-chemical resistance and representativeness. The viral inactivation steps are routinely performed in process using appropriate treatment. It was demonstrated that the inactivation steps reduced down the final viral load to the limit of detection.

Bench Test

In vitro bench tests were conducted on final product to demonstrate the safety and effectiveness of the device, and to demonstrate that the device performs as it is intended. The following tests were performed and were found to meet the similar specifications as a predicate.

- Color, odor, feel Inspection
- Dimensional Inspection
- Edge Verification
- Suture strength Verification
- Tensile strength Verification
- pH Verification
- UV Spectra Verification to determine the purity of the raw material
- Enzymatic Degradation Verification
- Swelling Rate Verification
- Compression and Kinking

Moreover, Endotoxin (Limulus Amebocyte Lysate Test) testing is routinely performed on the final device to conform to the endotoxin limit of 20 EU/device.

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Animal Study

An animal study was conducted in rat model to evaluate the performance and safety (local tissue effects) of the Cova™ORTHO-NERVE membrane after nerve section and direct suture in the rat peroneal nerve. No fibrous peri-nervous tissue was observed after 3, 60 or 90 days. The membrane also demonstrated its ability to confer a protective environment for the repaired nerve. Time for re-intervention was also lowered.

Conclusion

Cova™ORTHO-NERVE Resorbable Collagen Membrane is substantially equivalent to its predicate devices: Collagen Nerve Wrap, NeuraWrap™ and NeuroGen™.

DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service

Food and Drug Administration
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Document Control Room –WO66-G609
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MAR - 2 2012

Re: K103081
Trade/Device Name: Cova™ ORTHO-NERVE
Regulation Number: 21 CFR 882.5275
Regulation Name: Nerve Cuff
Regulatory Class: Class II
Product Code: JXI
Dated: December 21, 2011
Received: December 22, 2011

Dear Dr. Centis:

We have reviewed your Section 510(k) premarket notification of intent to market the device referenced above and have determined the device is substantially equivalent (for the indications for use stated in the enclosure) to legally marketed predicate devices marketed in interstate commerce prior to May 28, 1976, the enactment date of the Medical Device Amendments, or to devices that have been reclassified in accordance with the provisions of the Federal Food, Drug, and Cosmetic Act (Act) that do not require approval of a premarket approval application (PMA). You may, therefore, market the device, subject to the general controls provisions of the Act. The general controls provisions of the Act include requirements for annual registration, listing of devices, good manufacturing practice, labeling, and prohibitions against misbranding and adulteration. Please note: CDRH does not evaluate information related to contract liability warranties. We remind you, however, that device labeling must be truthful and not misleading.

If your device is classified (see above) into either class II (Special Controls) or class III (PMA), it may be subject to additional controls. Existing major regulations affecting your device can be found in the Code of Federal Regulations, Title 21, Parts 800 to 898. In addition, FDA may publish further announcements concerning your device in the Federal Register.

Please be advised that FDA's issuance of a substantial equivalence determination does not mean that FDA has made a determination that your device complies with other requirements of the Act or any Federal statutes and regulations administered by other Federal agencies. You must comply with all the Act's requirements, including, but not limited to: registration and listing (21 CFR Part 807); labeling (21 CFR Part 801); medical device reporting (reporting of medical device-related adverse events) (21 CFR 803); good manufacturing practice requirements as set forth in the quality systems (QS) regulation (21 CFR Part 820); and if applicable, the electronic product radiation control provisions (Sections 531-542 of the Act); 21 CFR 1000-1050.

If you desire specific advice for your device on our labeling regulation (21 CFR Part 801), please go to http://www.fda.gov/AboutFDA/CentersOffices/CDRH/CDRHOffices/ucm115809.htm for the Center for Devices and Radiological Health's (CDRH's) Office of Compliance. Also, please note the regulation entitled, "Misbranding by reference to premarket notification" (21CFR Part 807.97). For questions regarding the reporting of adverse events under the MDR regulation (21 CFR Part 803), please go to http://www.fda.gov/MedicalDevices/Safety/ReportaProblem/default.htm for the CDRH's Office of Surveillance and Biometrics/Division of Postmarket Surveillance.

You may obtain other general information on your responsibilities under the Act from the Division of Small Manufacturers, International and Consumer Assistance at its toll-free number (800) 638-2041 or (301) 796-7100 or at its Internet address http://www.fda.gov/MedicalDevices/ResourcesforYou/Industry/default.htm.

Sincerely yours,

Malvina B. Eydelman, M.D.
Director
Division of Ophthalmic, Neurological,
and Ear, Nose and Throat Devices
Office of Device Evaluation
Center for Devices and
Radiological Health

Enclosure

Indications for Use

510(k) Number (if known): K103081

Device Name: Cova™ORTHO-NERVE

Indications for Use:

Indicated for the repair of peripheral nerve injuries in which there is no gap or where a gap closure can be achieved by flexion of the extremity.

Prescription Use ___X___ AND/OR Over-The-Counter Use

(Part 21 CFR 801 Subpart D) (21 CFR 801 Subpart C)

(PLEASE DO NOT WRITE BELOW THIS LINE-CONTINUE ON ANOTHER PAGE IF NEEDED)

CDH

Concurrence of CDRH, Office of Device Evaluation (ODE)

(Division Sign-Off)
Division of Ophthalmic, Neurological and Ear,
Nose and Throat Devices

510(k) Number K103081