INSTRUCTIONS FOR USE
DynamX® Sirolimus Eluting Coronary Bioadaptor System

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CE 2265

For export only - not for sale in the USA

General Information:

- This device should only be used by physicians trained in angiography and percutaneous transluminal coronary angioplasty (PTCA).
- The Summary of Safety and Clinical Performance (SSCP) for this device is available for digital download in the European database on medical devices (Eudamed), where it is linked to the Basic UDI-DI. The URL to Eudamed is: https://ec.europa.eu/tools/eudamed. The Basic UDI-DI for the DynamX Sirolimus Eluting Coronary Bioadaptor System is: 081750801DynamXVIR4F.
- Contained within the device packaging is a patient implant card and leaflet that describes information that should be recorded on the card. The card should be completed by a healthcare professional as described in the leaflet and then provided to the patient.
- Any medical waste generated by the implant procedure should be safely disposed according to hospital policy.
- The bioadaptor is a permanent implant and is not intended to be removed after implantation.

1.0 DEVICE DESCRIPTION

The DynamX Sirolimus Eluting Coronary Bioadaptor System (DynamX SECBS) was designed to address both aspects of the coronary artery disease functions. The device improves luminal diameter and restores the hemodynamic modulation function of arteries (restoration of vessel pulsatility and compliance). After implantation of the bioadaptor, it unlocks following polymer degradation. Upon unlocking, the device separates into three independent helical strands and provides the essential dynamic radial support (reinforcement) to the diseased vessel wall enabling restoration of pulsatility and compliance. Thus, the DynamX SECBS restores both luminal flow and physiologic vessel mechanics.

The DynamX SECBS is comprised of a pre-mounted balloon expandable cobalt chromium alloy bioadaptor. The largest implant size contains approximately 0.07 g of cobalt chromium alloy. The bioadaptor pattern includes unlocking elements evenly spaced along the length and is coated with a proprietary bioresorbable polylactide based polymer basecoat. The active pharmaceutical ingredient on the DynamX bioadaptor is Sirolimus (also known as Rapamycin). Sirolimus is a macrocyclic lactone. Approximately 7 mcg of Sirolimus per mm of bioadaptor length (100 – 200 mcg/cm^2) is delivered via the bioresorbable polymer topcoat which allows sustained release of a majority of the drug in approximately 4 weeks. The largest amount of total polymer on a DynamX bioadaptor is approximately 0.0031 grams.

The DynamX delivery system incorporates a rapid-exchange delivery system that includes a nylon-blend balloon and distal shaft and a stainless steel hypotube in the proximal shaft. The total working length of the delivery system is 140 cm. There are two radiopaque markers located underneath the balloon to aid in visualization and to facilitate accurate bioadaptor placement. Additionally, there are two proximal delivery system shaft markers (90 cm and 100 cm from the distal tip) that indicate the relative position of the delivery system to the end of a brachial or femoral guiding catheter tip. The delivery system is compatible with 0.014 inch (0.36 mm) guide wires and 5 French guiding catheters (minimum inner diameter of 0.058 inches, or 1.47 mm).

The DynamX SECBS label specifications are included in summary format in **Table 1** below.

Table 1: DynamX SECBS Label Specifications

Catalog Number	Nominal Expanded Bioadaptor Diameter (mm)	Nominal Bioadaptor Length (mm)	Nominal Sirolimus Content (µg)	Nominal Pressure* (atm)	Rated Burst Pressure (atm)
VIR2014	2.0	14	94	11	16
VIR2214	2.25			11	16
VIR2514	2.5			10	16
VIR2714	2.75			11	16
VIR3014	3.0			10	16
VIR3514	3.5			10	16
VIR4015	4.0	15	100	11	14
VIR2018	2.0	18	120	11	16
VIR2218	2.25			11	16
VIR2518	2.5			10	16
VIR2718	2.75			11	16
VIR3018	3.0			10	16
VIR3518	3.5			10	16
VIR4018	4.0			11	14
VIR2023	2.0	23	153	11	16
VIR2223	2.25			11	16
VIR2523	2.5			10	16
VIR2723	2.75			11	16
VIR3023	3.0			10	16
VIR3523	3.5			10	16
VIR4023	4.0			11	14
VIR2028	2.0	28	188	11	16
VIR2228	2.25			11	16
VIR2528	2.5			10	16
VIR2728	2.75			11	16
VIR3028	3.0			10	16
VIR3528	3.5			10	16
VIR4028	4.0			11	14
VIR2032	2.0	32	213	11	16
VIR2232	2.25			11	16
VIR2532	2.5			10	16
VIR2732	2.75			11	16
VIR3032	3.0			10	16
VIR3532	3.5			10	16
VIR4032	4.0			11	14
VIR2038	2.0	38	253	11	16
VIR2238	2.25			11	16
VIR2538	2.5			10	16
VIR2738	2.75			11	16
VIR3038	3.0			10	16
VIR3538	3.5			10	16
VIR4038	4.0			11	14
VIR4041	4.0	41	273	11	14
VIR2043	2.0	43	287	11	14
VIR2243	2.25			11	14
VIR2543	2.5			10	14
VIR2743	2.75			11	14
VIR3043	3.0			10	14
VIR3543	3.5			10	14

Catalog Number	Nominal Expanded Bioadaptor Diameter (mm)	Nominal Bioadaptor Length (mm)	Nominal Sirolimus Content (µg)	Nominal Pressure* (atm)	Rated Burst Pressure (atm)
VIR2046	2.0	46	307	11	14
VIR2246	2.25			11	14
VIR2546	2.5			10	14
VIR2746	2.75			11	14
VIR3046	3.0			10	14
VIR3546	3.5			10	14
VIR2048	2.0	48	320	11	14
VIR2248	2.25			11	14
VIR2548	2.5			10	14
VIR2748	2.75			11	14
VIR3048	3.0			10	14
VIR3548	3.5			10	14

*See package label for product compliance information.

Clinical Benefit:

The DynamX SECBS is for use in patients with symptomatic ischemic heart disease. The major symptoms related to this disease state are angina pectoris, decreased exercise tolerance, cardiac arrhythmia, myocardial infarction, and heart failure. The use of drug eluting coronary bioadaptors, including the DynamX SECBS, has shown to restore blood flow by improving coronary luminal diameter, restoring hemodynamic modulation and reducing plaque progression in these patients, thus reducing the incidence of these symptoms. For the quantified clinical benefits, refer to section 9.0. Clinical Studies.

2.0 HOW SUPPLIED

Sterile: This device is sterilized with electron beam radiation and is non-pyrogenic. **Do not use the device if the package is opened or damaged.**

Contents: One DynamX Sirolimus Eluting Coronary Bioadaptor System
One flushing needle
One Instructions for Use document
One Patient Implant Card with Information Leaflet
One Compliance Chart
One Oxygen absorber

Storage: Store at ≤ 25 °C.

Disposal: Any medical waste generated by the implant procedure should be safely disposed according to hospital policy.

3.0 INTENDED PURPOSE, INDICATIONS FOR USE, INTENDED PATIENT POPULATION

3.1 Intended Purpose

The DynamX® Sirolimus Eluting Coronary Bioadaptor System is intended to improve coronary luminal diameter, restore hemodynamic modulation and reduce plaque progression in patients with symptomatic ischemic heart disease. The DynamX bioadaptor is a permanent uncaging implant, incorporating the ancillary drug substance, Sirolimus. The DynamX delivery system is intended as a single use catheter to deliver and deploy the bioadaptor at the target lesion.

3.2 Indications for Use

The DynamX® Sirolimus Eluting Coronary Bioadaptor System is indicated for improving coronary luminal diameter, restoring hemodynamic modulation and reducing plaque progression in patients with symptomatic ischemic heart disease due to discrete *de novo* native coronary artery lesions with reference vessel diameters between 2.0 - 4.0 mm and ≤ 44 mm in length. The bioadaptor is intended as a permanent uncaging implant.

4.0 CONTRAINDICATIONS

The DynamX Sirolimus Eluting Coronary Bioadaptor System is contraindicated for use in:

- Patients in whom antiplatelet and/or anticoagulation therapy is contraindicated.
- Patients judged to have a lesion that prevents complete inflation of an angioplasty balloon.
- Persons allergic to cobalt chromium alloy (including the major elements cobalt, chromium, tungsten, nickel), polylactide, polyglycolide, or polycaprolactone based polymers, Sirolimus (or its derivatives) may suffer allergic reaction to this implant.

5.0 WARNINGS AND PRECAUTIONS

WARNINGS

- Judicious selection of patients is necessary since the use of this device carries the associated risk of thrombosis, vascular complications and/or bleeding events.
- Persons who are unable to tolerate guideline directed dual antiplatelet therapy (DAPT) should not be considered for implantation of the DynamX SECBS.
- Only physicians who have received appropriate training should perform implantation of the bioadaptor.
- Subsequent bioadaptor blockage may require repeat dilatation of the arterial segment containing the bioadaptor.
- To avoid the possibility of dissimilar metal corrosion, do not implant devices of different materials in tandem where overlap or contact is possible.
- The safety and effectiveness of using mechanical atherectomy devices (directional atherectomy catheters, rotational atherectomy catheters) or laser angioplasty catheters in conjunction with DynamX bioadaptor implantation have not been established.

PRECAUTIONS

Intended for single use only. Reuse, reprocess or resterilization of the device may result in loss of drug coating efficacy and/or loss of device integrity and/or contamination which may result in repeat intervention and/or patient injury, illness, or death.

5.1 Bioadaptor Handling

- **For single use only.** Do not resterilize or reuse this device. Note product "Use by" date on the label.
- **Do not remove the bioadaptor from the Delivery System** as removal may damage the bioadaptor and/or lead to bioadaptor embolization. The DynamX SECBS is intended to perform as a system. The bioadaptor is not designed to be reloaded onto another delivery device. Attempts to reload the bioadaptor may damage the bioadaptor and/or lead to embolization.
- Special care must be taken not to handle or in any way disrupt the bioadaptor position on the Delivery System. This is most important during catheter removal from the packaging (pouch, coil, bioadaptor sheath), placement over the guide wire and advancement through the rotating hemostatic valve adapter and guiding catheter hub.

- Do not manipulate (e.g., roll) the bioadaptor with your fingers, as this action may loosen the bioadaptor from the delivery system.
- Use only the recommended balloon inflation medium. Never use air or any gaseous medium to inflate the balloon, as this may cause uneven expansion and difficulty in deployment of the bioadaptor.

5.2 Bioadaptor Placement

- Predilatation of the lesion is required for safe bioadaptor delivery.
- **Do not prepare or pre-inflate the bioadaptor delivery system prior to bioadaptor deployment** other than as directed**.** Use balloon purging technique described in Preparation of Delivery System section.
- Implanting a bioadaptor may lead to dissection of the vessel proximal or distal to the bioadaptor-implanted portion and may cause acute closure of the vessel requiring additional intervention (e.g., CABG, further dilatation or placement of additional bioadaptors). If additional bioadaptor placement is required, bioadaptor materials of similar composition should be used.
- When treating multiple lesions, place the bioadaptor in the distal lesion prior to placement of a bioadaptor in the proximal lesion to reduce the chance of dislodging the proximal bioadaptor.
- Do not expand the bioadaptor if it is not properly positioned in the vessel (See Bioadaptor/Delivery System Removal Precautions).
- Bioadaptor placement may compromise side branch patency.
- **Do not exceed the Rated Burst Pressure as indicated on the product label**. Balloon pressures should be monitored during inflation. Use of pressures higher than those specified on the product label may result in balloon rupture and/or potential vessel damage.
- Should unusual resistance be felt at any time during either lesion access or removal of the delivery system pre-bioadaptor implantation, the system should be removed as a single unit per the Bioadaptor/Delivery System Removal Precautions.
- Bioadaptor retrieval methods (use of additional wires, snares and/or forceps) may result in additional trauma to the coronary vasculature and/or the vascular access site.
- Additional expansion of a deployed bioadaptor may cause a flow limiting dissection. This may be treated by implantation of another bioadaptor. When multiple bioadaptors are used, the ends should overlap slightly (1 - 2 mm).
- The vascular effect of overlapping bioadaptors has not been clinically tested with this device and should be employed only as medically necessary.
- Ensure the bioadaptor is not under dilated. If the deployed bioadaptor is not fully apposed to the vessel wall, the bioadaptor may be expanded further with a high pressure non-compliant balloon that is slightly shorter than the bioadaptor. The edges of the balloon should not extend outside of the bioadaptor-implanted region.

5.3 Bioadaptor / Delivery System Removal (Prior to deployment)

- If removal of a bioadaptor system is required prior to deployment, ensure the guiding catheter is coaxially positioned relative to the delivery system and cautiously withdraw the bioadaptor/delivery system into the guiding catheter.
- An unexpanded bioadaptor may be retracted into the guiding catheter one time only. Subsequent movement in and out through distal end of the guiding catheter should not be performed as the bioadaptor may be damaged or dislocated.

- Should **unusual** resistance be felt **at any time** during either lesion access or Delivery System removal, the Delivery System and guiding catheter should be removed as a single unit.
  When removing the delivery system as a single unit:
  - Do not retract (withdraw) the bioadaptor/balloon section of the Delivery System into the guiding catheter.
  - Position the proximal balloon marker just distal to the tip of the guiding catheter.
  - Advance the guidewire into the coronary anatomy as far distally as safely possible.
  - Tighten the rotating hemostatic valve to secure the delivery system to the guiding catheter; then remove the guiding catheter and delivery system as a **single unit**.
  - If it is necessary to retain guide wire position for subsequent artery/lesion access, leave the guide wire in place and remove all other system components.
  - Failure to follow these steps and/or applying excessive force to the Delivery System can potentially result in loss or damage to the bioadaptor and/or delivery system components.

5.4 Post-Implant Procedure

When crossing a newly deployed bioadaptor with a guide wire, balloon or delivery system, exercise care to avoid disrupting the bioadaptor geometry.

5.4.1 Magnetic Resonance Imaging (MRI) Safety Information

MR Conditional

MRI Safety Information

A patient with the DynamX Sirolimus Eluting Coronary Bioadaptor System may be safely scanned under the following conditions. Failure to follow these conditions may result in injury to the patient.

Name/Identification of device	DynamX Sirolimus Eluting Coronary Bioadaptor System
Nominal value(s) of Static Magnetic Field	1.5 T or 3 T
Maximum Spatial Field Gradient	30 T/m (3000 gauss/cm)
RF Excitation	Circularly Polarized (CP)
RF Transmit Coil Type	Whole body transmit coil, Head RF transmit-receive coil
Maximum Whole Body SAR	2.0 W/kg (Normal Operating Mode)
Limits on Scan Duration	2.0 W/kg whole body average SAR for 15 minutes of continuous RF (a sequence or back to back series/scan without breaks)
MR Image Artifact	The presence of this implant may produce an image artifact of 6 mm.
If information about a specific parameter is not included, there are no conditions associated with that parameter.	

MRI compatibility information should be discussed with patients.

6.0 RESTRICTED SUBSTANCES

One or more components of this device contains the following substances defined as CMR 1B in a concentration above 0.1% weight by weight:
Cobalt; Chemical Abstracts Service (CAS) No. 7440-48-4; EC No. 231-158-0

Current scientific evidence supports that medical devices manufactured from cobalt alloys and stainless steel alloys containing cobalt do not cause an increased risk of cancer or adverse reproductive effects.

7.0 DRUG INFORMATION

7.1 Mechanism of Action

Sirolimus is a macrocyclic lactone with immunosuppressive and anti-proliferative properties. Sirolimus binds to the immunophilin, FK binding Protien-12 (FKBP-12), to generate an immunosuppressive complex. This complex binds to and inhibits the activation of the mammalian Target of Rapamycin (mTOR), a key regulatory kinase. This inhibition suppresses cytokine-driven cell proliferation, inhibiting the progression from the G1 to the S phase of the cell cycle. The anti-proliferative drug substance sirolimus is intended to reduce restenosis as an adjunct to coronary intervention using the DynamX SECBS.

7.2 Drug Interaction

While no specific clinical data are available, drugs like tacrolimus which act through the same binding protein (FKBP) may interfere with the efficacy of Sirolimus or Rapamycin-type drugs. Drug interaction studies have not been performed. Rapamycin-type drugs are metabolized by CYP3A4. Strong inhibitors of CYP3A4 (e.g., ketoconazole) might cause increased Sirolimus exposures to levels associated with systemic effects, especially if multiple bioadaptors are deployed. Systemic exposure of Sirolimus or Rapamycin-type drugs should also be taken into consideration if the patient is treated concomitantly with systemic immunosuppressive therapy. Grapefruit may potentially interfere with the metabolism of Sirolimus. Drug interaction information should be discussed with patients.

7.3 Mutagenesis, Carcinogenicity and Reproductive Toxicity

7.3.1 Mutagenesis

Sirolimus was not genotoxic in the in vitro bacterial reverse mutation assay, the Chinese hamster ovary cell chromosomal aberration assay, the mouse lymphoma cell forward mutation assay, or the in vivo mouse micronucleus assay.

7.3.2 Carcinogenicity

Formal carcinogenicity testing has not been conducted on the DynamX bioadaptor. The carcinogenic potential of the DynamX bioadaptor is minimal based on the limited period of Sirolimus release, on the types and quantities of materials present, and on the favorable outcomes and results of the mutagenesis testing.

7.3.3 Reproductive Toxicity

Formal reproductive toxicity testing has not been conducted on the DynamX bioadaptor. The reproductive toxicity potential of the DynamX bioadaptor is minimal based on the limited period of Sirolimus release and on the types and quantities of materials present.

8.0 POTENTIAL ADVERSE EVENTS

Potential incidents, serious incidents and undesirable side effects (in alphabetical order) are consistent with the implantation of a coronary stent or PTCA procedure and include:

- Abrupt Closure
- Allergic reaction (hypersensitivity to polylactide, polyglycolide, or polycaprolactone based polymers, or cobalt chromium alloy)
- Aneurysm, pseudoaneurysm
- Angina
- Arrhythmias
- Arteriovenous fistula
- Bioadaptor migration, embolization or misplacement
- Cardiac tamponade
- Damage to the vessel requiring CABG
- Death
- Device separation/unable to remove device, requiring surgical removal
- Dissection, perforation or rupture of the coronary artery
- Drug reactions to antiplatelet/anticoagulation agents or contrast media
- Embolism (air, tissue, device or thrombus)
- Failure to deliver the device to the intended site
- Hemorrhage
- Hypotension/hypertension
- Infection and pain at the insertion site
- Myocardial ischemia and/or infarction
- Occlusion of the artery
- Peripheral ischemia
- Restenosis of the treated artery
- Stroke/transient ischemic attack
- Thrombosis (acute, subacute or late)
- Ventricular fibrillation
- Vessel spasm

The following additional side effects/complications may be associated with, but not limited to the use of Sirolimus or Rapamycin-type drugs:

- Acne
- Diarrhea or constipation
- Headache
- Increased blood pressure
- Increased cholesterol or triglyceride levels
- Insomnia
- Nausea
- Rash
- Sore or weak muscles or joints
- Tremor
- Upper respiratory or urinary tract infections
- Water retention

Any serious incident that has occurred in relation to the device should be reported to the manufacturer (Elixir Medical Corporation) and the applicable health authority. Manufacturer contact information is included on the final page of this Instructions for Use.

Potential adverse events and reporting of serious adverse events should be discussed with patients.

9.0 OVERVIEW OF CLINICAL STUDIES

9.1 DynamX Sirolimus Eluting Coronary Bioadaptor System (SECBS) BIOADAPTOR RCT Clinical Study

The BIOADAPTOR RCT Study is a multicenter, international, prospective, randomized, single-blind study conducted in Europe and Asia Pacific at 34 clinical centers. The objective of this study was to evaluate the safety and effectiveness of the DynamX SECBS bioadaptor for the intended use of improving coronary luminal diameter and reducing plaque progression in patients presenting with ischemic heart disease due to de novo, native coronary artery lesions with comparison to a contemporary DES, the Medtronic Vascular Resolute Onyx (control arm). The study enrolled 445 subjects randomly allocated in a 1:1 ratio to either the test or control arm. All subjects will receive follow-up clinical assessments at 1, 6 and 12 months and every year for 5 years thereafter. **Table 2** summarizes the subjects, objectives and endpoints, primary outcomes, main secondary outcomes and conclusions from the study.

Table 2: BIOADAPTOR RCT Study Results Summary

Patients	Subjects with up to 2 de novo lesions located in 2 separate native coronary arteries as target lesion(s). Randomized 445 patients. DynamX bioadaptor: 223 patients; Resolute Onyx: 222 patients.
Objectives and Endpoints	Study Objective: To verify the safety and efficacy of the investigational device (DynamX bioadaptor) for the treatment of ischemic heart disease due to de novo, native coronary artery lesions. Primary Endpoint: 12-month TLF; Secondary Endpoints: Acute success rates and other clinical endpoints measured at 30 days, 6 months, 12 months, 2, 3, 4 and 5 years; Imaging Endpoints: QCA: acute recoil, LLL, MLD, %DS, and change in vessel angulation; IVUS: Change in mean lumen area, %neointimal obstruction, LLL, and stent malapposition; OCT: %strut coverage, NIH thickness, and vessel pulsatility
Primary Outcomes	12-month TLF: 1.81% in the DynamX arm and 2.79% in the Resolute Onyx arm, non-inferiority $p < 0.001$

Main Secondary Outcomes and Imaging Outcomes	Device, lesion and procedure success rates were high and similar in both study groups (99.6% vs 99.6%, 99.6% vs 99.6%, 98.7% vs 97.3%, respectively); No statistical difference in any of the secondary clinical endpoints (e.g., acute success rate, lesion success rate, device success rate); 24 Months: TLF rate through 24 months per the ITT population was 2.31% (5/216) in the DynamX arm and 5.50% (12/218) in the Resolute Onyx arm (p=0.087 for superiority). The 24-month TLF rate according to the Per Protocol (PP) population was 1.89% in the DynamX arm and 5.53% in the Resolute Onyx arm (p=0.046 for superiority); QCA: no differences in acute gain but superior in-device LLL at 12 months for DynamX compared to the Resolute Onyx (0.09 ± 0.34 mm vs. 0.25 ± 0.39 mm, p=0.038); IVUS: significantly lower %neointimal obstruction for DynamX compared to Resolute Onyx (3.54 ± 2.28% vs. 5.28 ± 3.32%, p<0.001); the % change in plaque volume within the treated segment was 3 ± 19% versus 12 ± 24% (p=0.032) in the DynamX group and Resolute Onyx group, respectively; OCT: high % strut coverage in both groups (98.47% ± 1.07% for DynamX vs. 97.39% ± 2.28% for Resolute Onyx, p=0.462). Cyclic pulsatility was demonstrated by stationary OCT with 8.1% vs. 2.3%, p<0.001 for the change in in-device lumen area and 7.6% vs. 1.1%, p<0.001 for the change in in-device device area for DynamX vs. Resolute Onyx.
Conclusions	The DynamX bioadaptor has been shown to be beneficial for improving luminal diameter in patients with symptomatic coronary artery disease, as the DynamX bioadaptor demonstrated non-inferiority compared with the Resolute Onyx for TLF at 12-months. Positive clinical performance for DynamX in TLF and TVF rates were observed at 24 months. The available data support the conclusion that the probable benefits of using the DynamX bioadaptor outweigh the risks for improving coronary luminal diameter and reducing plaque progression in patients with symptomatic ischemic heart disease due to discrete de novo native coronary artery lesions.

9.2 DynamX Sirolimus Eluting Coronary Bioadaptor System INFINITY-SWEDEHEART R-RCT

The INFINITY-SWEDEHEART is a prospective, multicenter, single-blind, randomized registry-based clinical trial. The objective of this study is to evaluate the safety and effectiveness of the DynamX bioadaptor compared to the Resolute Onyx in the treatment of patients with ischemic heart disease with de novo native coronary artery lesions in epicardial vessels in a more-comers PCI patient population. Eligible patients were randomized 1:1 (DynamX bioadaptor: Resolute Onyx). Patients were contacted by telephone to check for Events of Special Interest (ESI) at 30 days and 1 year and by telephone at years 3, 4 and 5 for assessment of anginal status. **Table 3** summarizes the subjects, objectives and endpoints, primary outcomes, main secondary outcomes and conclusions from the study.

Table 3: INFINITY-SWEDEHEART Results Summary

Patients	Subjects with up to 3 de novo native coronary artery lesions; Randomized 2400 patients. DynamX SECBS: 1202 patients; Resolute Onyx: 1198 patients.
Objectives and Endpoints	Study Objective: To evaluate the safety and effectiveness of the DynamX bioadaptor compared to the Resolute Onyx in the treatment of patients with ischemic heart disease with de novo native coronary artery lesions in epicardial vessels. Primary Endpoint: 12-month TLF; Powered secondary endpoints: Landmark analysis of TLF, TVF, and TLF in ACS subgroup from 6 months to End of Follow-up. Additional secondary Endpoints: Acute success rates, other clinical endpoints, and SAQ-7 measured up to 5 years.
Primary Outcomes	12-month TLF: 2.35% (28/1189) in the DynamX arm and 2.77% (33/1192) in the Resolute Onyx arm, non-inferiority $p < 0.001$.
Main Secondary Outcomes	A landmark analysis on 6-12 months TLF events showed a significant reduction in the TLF rate for the DynamX arm (log-rank p-value = 0.0031). A flattening Kaplan-Meier curve was observed after 6 months for the DynamX arm whereas a non-plateauing curve for the Resolute Onyx arm. Device and procedure success rates were similarly high in the DynamX arm and Resolute Onyx arm (99.6% vs 99.9% and 99.5% vs 99.8%, respectively). Definite or probable device thrombosis was observed in 0.68% for the DynamX arm and 0.51% for the Resolute Onyx arm through 12 months. There were also no statistical differences observed in any of the secondary clinical endpoints between arms except non-target vessel MI.
Conclusions	The trial met its primary endpoint demonstrating a 12-month TLF rate of 2.35% in the DynamX arm and 2.77% in the Resolute Onyx DES arm ($p<0.001$ for non-inferiority) in a large RCT enrolling patients representing every-day clinical practice including three quarters of patients being ACS patients. Between 6 and 12 months, the DynamX demonstrated favorable clinical performance which is likely due to the unlocking mechanism being effective and hemodynamic modulation being restored as compared to the first 6 months. As such, the probable benefits of using the DynamX bioadaptor outweigh the risks for its intended use.

10.0 PATIENT SELECTION AND TREATMENT

10.1 Individualization of Treatment

The risks and benefits should be carefully considered for each patient before use of the DynamX SECBS. Patient selection factors to be assessed should include a judgment regarding risk of anticoagulation therapy. Persons who are unable to tolerate guideline directed dual antiplatelet therapy should not be considered for implantation of the DynamX SECBS. Bioadaptor implantation should be generally avoided in those patients at heightened risk of bleeding (e.g., those patients with

recently active gastritis or peptic ulcer disease) in which anticoagulation therapy would be contraindicated.

Co-morbidities that increase the risk of poor initial results or the risk of emergency bypass surgery (diabetes mellitus, renal failure, and severe obesity) should be considered.

Thrombosis following bioadaptor implantation is affected by several baseline angiographic and procedural factors. These include vessel diameters less than 2.0 mm, intra-procedural thrombosis, poor distal flow, and/or dissection following bioadaptor implantation. In patients that have undergone coronary bioadaptor implantation, the persistence of thrombus or dissection is considered a marker for subsequent thrombotic occlusion. These patients should be monitored very carefully during the first month after bioadaptor implantation.

Use outside of the specified Indications for Use is prohibited. The use of drug-eluting stents/devices in patients and lesions outside the labeled indications may have an increased risk of adverse events, including device thrombosis, device embolization, myocardial infarction, or death.

10.2 Intended Patient Population

The intended patient population for the DynamX SECBS is patients with symptomatic ischemic heart disease due to discrete *de novo* native coronary artery lesions.

Limitations

The safety and effectiveness of the DynamX SECBS have not been established in patients with:

- Unresolved thrombus at the lesion site.
- A coronary artery reference vessel diameter < 2.0 mm.
- A lesion located in the left main coronary artery, ostial lesions or lesions located at a bifurcation.
- Diffuse disease, or poor outflow distal to the identified lesions.
- > 2 overlapping bioadaptors (due to risk of thrombosis and restenosis).
- In-stent restenosis.
- Lesion located in arterial or saphenous vein graft.

The safety and effectiveness of using mechanical atherectomy devices (directional atherectomy catheters, rotational atherectomy catheters) or laser angioplasty catheters to treat in-bioadaptor restenosis have not been established.

Pregnancy

Pregnancy Category C: Adequate studies have not been conducted with Sirolimus or the DynamX bioadaptor in pregnant women or males intending to father children. Effective contraception should be initiated before implanting a DynamX bioadaptor and for 1 year after implantation. The DynamX bioadaptor should be used during pregnancy only if the potential benefit outweighs the risk to the embryo or fetus. This information should be discussed with patients.

Lactation

It is not known whether Sirolimus is excreted in human milk. The pharmacokinetic and safety profiles of Sirolimus in infants are not known. Because similar drugs are excreted in human milk and because of the potential for adverse reactions in nursing infants from Sirolimus, a decision should be made whether to discontinue nursing or to implant the bioadaptor, taking into account the importance of the bioadaptor to the mother. This information should be discussed with patients.

11.0 CLINICIAN USE INFORMATION

11.1. Materials Required

- Appropriate guiding catheter(s) (5F or 0.058" ID minimum)
- 2-3 syringes
- Heparinized normal sterile saline
- 0.014 inch (0.36 mm)(maximum OD) x 175 cm (minimum length) guide wire
- Rotating hemostatic valve
- 60% contrast diluted 1:1 with normal saline
- Inflation device
- Three-way stopcock
- Torque device
- Guide wire introducer

11.2. Selection of bioadaptor size

The treated lesion length should be less than the nominal bioadaptor length. Refer to compliance chart on product label regarding bioadaptor diameter sizing.

11.3. Packaging Removal

11.3.1. Carefully inspect the packaging pouch for damage. **Do not use if the package has been damaged or opened.**

11.3.2. Peel open the pouch using aseptic technique to reveal the sterile catheter.

11.3.3. Pass or drop the sterile catheter into the sterile field using aseptic technique.

11.4. Inspection Prior to Use

11.4.1. Carefully remove the bioadaptor system with sheath from the hoop. Be careful to not catch the edge of the sheath on the sidearm of the hoop, which may inadvertently unsheathe and expose the bioadaptor.

11.4.2. Prior to use, carefully inspect the catheter for kinks, bends or other damage. Do not use if damage is noted or if the device is inadvertently contaminated.

11.4.3. Verify that the bioadaptor is located between the radiopaque markers on the balloon.

11.5. Preparation of Delivery System

11.5.1. Prepare the guiding catheter, guide wire and inflation device according to the manufacturer's instructions.

11.5.2. Carefully slide the protective sheath covering the bioadaptor/balloon segment by fixing the sheath at the distal end between the thumb and finger while gently pulling the sheath and attached stylet, ensuring that you are not touching the bioadaptor/balloon.

11.5.3. Flush the bioadaptor system with heparinized saline using the flushing needle.

Caution: Avoid manipulation of the bioadaptor during flushing of the guidewire lumen, as this may disrupt the placement of the bioadaptor on the balloon.

11.5.4. Fill a 20 cc syringe with 5 cc of contrast/heparinized normal saline mixture (1:1).

11.5.5. Attach to the delivery system proximal hub and apply negative pressure for 10 seconds.

11.5.6. With the syringe tip pointing downwards, slowly release pressure to neutral.

11.5.7. Attach a prepared inflation device to the catheter hub, leave on neutral pressure.

Caution: Do not apply negative pressure on inflation device during delivery of the bioadaptor to the lesion site.

11.6. Delivery Procedure

11.6.1. Prepare vascular access site according to standard practice.
11.6.2. Pre-dilate the lesion site using a balloon that is shorter than the bioadaptor length.
11.6.3. While maintaining neutral pressure on the inflation device, backload the delivery system onto to the guidewire.
11.6.4. Fully open the rotating hemostatic valve to allow easy passage of the bioadaptor and delivery system.

Note: If unusual resistance is felt at any time, determine the cause of resistance before proceeding and as necessary follow the Bioadaptor Removal Precaution instructions.

11.6.5. Tighten hemostatic valve and advance the bioadaptor system over the guidewire to the lesion site while maintaining stable guide catheter and guidewire positioning.

11.7. Bioadaptor Deployment

11.7.1. Prior to bioadaptor expansion, reconfirm the location of the bioadaptor in relation to the balloon markers using high-resolution fluoroscopy.
11.7.2. Under fluoroscopic guidance, inflate the bioadaptor system to the nominal pressure or until the bioadaptor appears fully expanded. Maintain pressure for 15 – 30 seconds. Optimal expansion requires the bioadaptor to be in full contact with the vessel wall, with the inner diameter of the bioadaptor matching the reference vessel diameter.

Note: Do not exceed the Rated Burst Pressure.

11.7.3. If further dilatation of the deployed bioadaptor is required, a larger diameter, non-compliant balloon of a length shorter than the deployed bioadaptor may be used. Avoid disruption of the bioadaptor when crossing the newly deployed bioadaptor with the balloon catheter.

Do not expand the bioadaptor beyond the maximum inner diameter shown below (**Table 4**).

Table 4: DynamX SECBS Maximum Expansion Diameter

Nominal Bioadaptor Diameter (mm)	Maximum Bioadaptor Expansion Diameter (mm)
2.0	2.75
2.25	2.75
2.5	3.5
2.75	3.5
3.0	3.5
3.5	4.5
4.0	4.5

11.8. Removal Procedure

11.8.1. Ensure the balloon is fully deflated before attempting to withdraw the delivery system. Depending on device size and contrast brand and dilution, this may take up to 30 seconds.
11.8.2. Withdraw the delivery system while maintaining guidewire placement.

11.8.3. Repeat angiography to assess the bioadaptor-implanted area. If adequate expansion has not been achieved follow the instructions under Bioadaptor Deployment. **Ensure the bioadaptor is not under dilated.**

11.9. Bioadaptor/ Delivery System Removal (Prior to deployment)

11.9.1. If removal of a bioadaptor system is required prior to deployment, ensure the guide catheter is coaxially positioned relative to the delivery system and cautiously withdraw the bioadaptor/delivery system into the guide catheter.

11.9.2. Should **unusual resistance** be felt **at any time** during either lesion access or removal of the bioadaptor delivery system pre-implantation, **remove the delivery system as a single unit.**

When removing the delivery system as a single unit:

- Do not retract (withdraw) the bioadaptor/balloon section of the Delivery System into the guiding catheter.
- Position the proximal balloon marker just distal to the tip of the guiding catheter.
- Advance the guide wire into the coronary anatomy as far distally as safely possible.
- Tighten the rotating hemostatic valve to secure the bioadaptor delivery system to the guiding catheter, and then remove the guiding catheter and bioadaptor system as a single unit.
- If it is necessary to retain guide wire position for subsequent artery/lesion access, leave the guide wire in place and remove all other system components.

Failure to follow these steps and/or applying excessive force to the bioadaptor delivery system during removal may result in the loss or damage to the bioadaptor and/or delivery system components.

12.0 PACKAGING INFORMATION

A package contains one DynamX bioadaptor pre-loaded onto the Delivery System and one flushing needle. An Instructions for Use document, patient implant card with information leaflet, and compliance card are included in the package.

The DynamX SECBS is supplied Sterile using electron beam radiation and non-pyrogenic in unopened, undamaged packages.

Intended for single use only. Do not reuse, reprocess or resterilize.

Store at ≤ 25 °C. Use by the "Use by" Date noted on the package.

CAUTION: DO NOT USE IF THERE IS ANY DAMAGE TO THE PACKAGE

13.0 PATENTS

U.S. and foreign patents pending

14.0 DISCLAIMER OF WARRANTY

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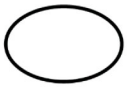
The exclusion and limitations set out above are not intended to and should not be construed so as to contravene mandatory provisions of applicable law. If any part or term of this Disclaimer of warranty is held to be illegal, unenforceable or in conflict with applicable law by a court of competent jurisdiction, the validity of the remaining portions of the Disclaimer of Warranty shall not be affected.

	Manufacturer		Upper limit of temperature
	Authorized representative in the European Community		Do not re-use
	Date of manufacture		Consult instructions for use or consult electromic instructions for use
	Use-by date		Caution
	Batch code		Non-pyrogenic
	Catalogue number		Medical Device
	Importer		Unique device identifier
	Sterilized using irradiation		Rapid exchange
	Do not resterilize		Guiding catheter
	Do not use if package is damaged		Contains hazardous substance
	Single sterile barrier system		MR Conditional
	Contains a medicinal substance		

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