CEDARS-SINAI MEDICAL CENTER

CONSENT FORM FOR RESEARCH

Title: USING ELECTRICAL NERVE STIMULATION TO CONTROL ATRIAL FIBRILLATION

STUDY SUPPORT PROVIDED BY: **NIH AWARD: 1OT2OD028190 – 01 IDE G190241**

PRINCIPAL INVESTIGATOR: **PENG-SHENG CHEN, MD**

STUDY CONTACT PHONE NUMBER AT CSMC: **310-248-6679**

AFTER HOURS CONTACT (24 HOURS): **310-248-6679**

This research study is sponsored by National Institute of Health NIH. NIH only reimburses Cedars-Sinai Medical Center for the costs associated with running the study; NIH is not providing additional compensation to Cedars Sinai Medical Center or the Principal Investigator for their participation in the study.

KEY INFORMATION ABOUT THIS RESEARCH STUDY

We are seeking your consent to take part in this research study. Your participation in this research is voluntary. If you choose to participate, you can stop at any time. Please consider the following summary, along with the more detailed information provided throughout this consent form.

- The purpose of this study is to see if sending mild electrical signals just under your skin will improve your symptoms of atrial fibrillation (AF) (irregular heartbeat) by controlling your heart rate.

- The main procedures of this study include a minimally invasive procedure to have a "lead" placed into the "subcutaneous" tissue in the left chest area. All subjects will receive the externalized LEAD implantation regardless of which treatment group they are randomly assigned to. The study will last about 4-5 months depending on the group you are randomized to. If you are randomized into the control group, you will receive the opportunity to be part of the treatment group, however, you also have the option of not crossing over and completing the study according to the original study design.

- All research studies involve some risks. Risks or discomforts from this study may include low blood pressure, dizziness, fatigue, fainting, pain, tenderness, mild to moderate swelling and/or bruising, goosebumps, hot flashes, or other uncomfortable feelings related to electrical stimulation of the subcutaneous nerves.

- The possible benefits of taking part in this study are that it may result in better control of atrial fibrillation and reduce the symptoms you experience with atrial fibrillation.

If you choose not to participate, there may be other choices available to you. Some other choices may include taking medications to treat and/ or control your atrial fibrillation or your doctor may recommend a procedure called ablation (a procedure that is used to scar small areas in your heart that may be involved in your heart rhythm problems). You will not lose any services, benefits, or rights you would normally have if you choose not to participate. Please discuss your choices with the researchers.

Please take time to read this entire form and ask questions before deciding whether to participate in this study. You are encouraged to talk with family members, friends, and/or healthcare providers before you make your decision.

1. WHAT IS THE PURPOSE OF THIS RESEARCH STUDY?

We are doing this study to examine if sending mild electrical signals just under your skin will improve your symptoms of atrial fibrillation by controlling your heart rate.

You are being asked to take part in this research study because you have symptomatic atrial fibrillation that has not been successfully treated with medications. This means you may feel fast heartbeats, dizziness, feel like fainting, fainting, shortness of breath, fatigue, and your activity level is low. Your doctor may have tried the standard medications used for atrial fibrillation that have not helped to control your heart rate and/or rhythm. Scientists do research to answer important questions, which might help change or improve the way we do things in the future.

The study will enroll up to 30 people in total.

This research study is designed to test the investigational use of Medtronic Vectris 1X8 compact trial screening Lead Kit for Spinal Cord stimulation and the Medtronic wireless external neurostimulator (WENS). These devices are approved by the US Food Drug Administration (FDA) to treat other conditions, like pain in the body or arms and legs. However, they are not approved by the FDA for the treatment of patients with symptomatic atrial fibrillation.

For heart rhythm monitoring, we will use a mobile cardiac telemetry (MCT) device which is a skin patch with a small memory chip and battery inside. We will teach you how to use these devices per manufacturer's instructions. The heart rhythm is constantly transmitted by the device to the manufacturer in real-time A trained technician will monitor the heart rhythm and report any significant heart rhythm disorders to the investigators

To monitor skin sympathetic nerve activity (SKNA) and heart rhythm (ECG), a Bittium Faros MCT monitor, a non-invasive waterproof ECG monitor, will be applied to your skin via skin electrodes (patches) on the skin. This device will be placed at each study visit and will be worn for up to 7 days.

Additionally, enrolled subjects will be monitored with an Apple Watch from your Baseline visit until the 3 Month Visit's 7-Day Mobile Cardiac Monitoring is complete. Apple Watch is known to be effective in detecting AF. We will give you an Apple Watch and an Apple iPhone-for AF detection during your Baseline visit. Your Apple Watch will be configured by our research team to monitor Heart Rate and Irregular Heart Rhythm. We will set up your Apple Watch to connect to your Apple iPhone's HealthApp. Your Apple iPhone's HealthApp will be connected to an iPhone owned by the research team in order for us to monitor your heart rhythm. At the

end of the study, you may keep both the iPhone and the Watch.

2. WHAT WILL HAPPEN DURING THE STUDY?

This section provides a general overview of what will happen during your participation in this study. The information included below should be considered along with the flowchart of procedures attached as an Appendix A.

The flowchart shows a timeline for research-related or standard-of-care procedures that are involved in your participation in this study. **Research-related procedures** are those performed solely for the research. They would not be performed if you did not take part in the study. **Standard of care (routine)** procedures would be performed both as part of this study and if you do not participate in this study.

A table describing common medical procedures done solely for the purposes of monitoring and assessing your condition during this study is attached as an Appendix A to the end of this consent form.

Overview of study:

This is a randomized research study.

- "**Randomized**" means that you will be assigned to a study group by chance, like flipping a coin. You will be randomized on the day of surgery into one of 2 study groups and will have an equal chance of being placed in one of the groups described above.

This study has 2 study groups:

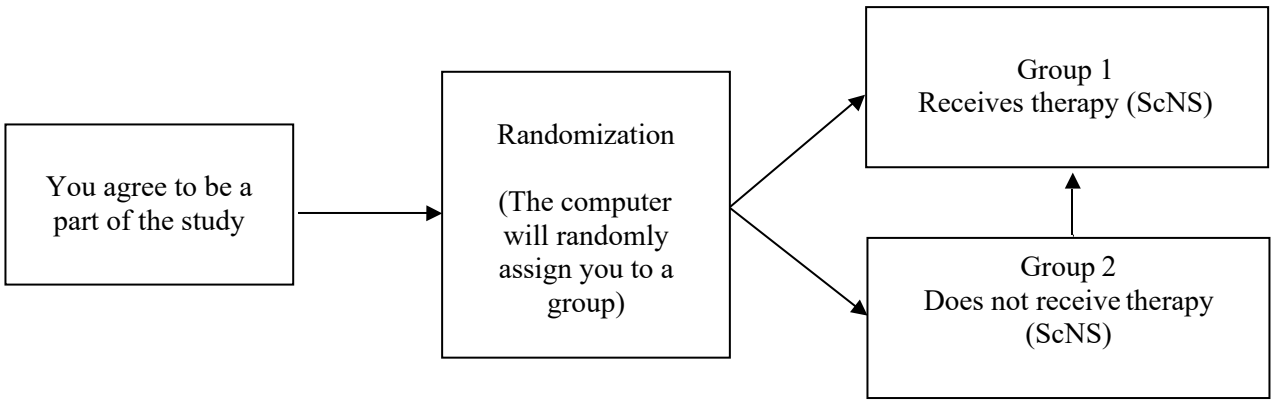
- Group 1- will receive the therapy.
- Group 2- does not receive the therapy
    - After the week 3 visit is complete, Group 2 has the option of receiving therapy
    - You also have the option of not crossing over and completing the study according to the original study design

On the day of surgery, a computer will randomly assign you to a study group during procedure day visit. This is done because no one knows if the results experienced by the participants in one study group are better, the same, or worse than the results experienced by participants in the other. Once you are put in one group, you cannot switch to another group. Neither you nor your doctor can choose the group in which you will be placed. Group 2 will have the option of receiving the treatment after completing the week 3 visit.

This study will allow the researchers to learn whether the different approaches are better, the same, or worse than the current standard of care. The therapy has already been tested for safety; however, it is not part of the current standard of care.

In order to properly follow the study's protocol (research plan), all participants will receive treatments and procedures that have been pre-determined by the protocol. In effect, the protocol describes which medications or procedures you will receive, rather than those decisions being made by your personal doctor or based on your preference. There may be options available outside of this study that you will not be able to receive while participating in this study. We do not believe you should be at any increased risk due to this limitation.

Another way to find out what will happen to you during the study is to read the chart below. Start reading at the left side and read across to the right, following the lines and arrows.



Eligibility visit

This visit will take place at the cardiology clinic and it may take up to 1 hour. This visit will determine if you qualify for the study. The heart rhythm recording must document evidence of atrial fibrillation lasting greater than 30 seconds.

During this visit you will do the following study-related procedures:

- Sign the informed consent
- If you do not have heart rhythm monitor results that show AF burden within 6 months before surgery, you will do a heart rhythm monitor for a week:
    - Preventice Body Guardian Mini Plus - 7-day mobile cardiac telemetry patch - small heart rhythm monitoring patch that records all heartbeats and determines the heart rhythm over a 7-day period. The patch monitoring will be used before surgery (baseline) and after the stimulating lead is removed, but not during stimulation.
    - Bittium Faros – a non-invasive mobile cardiac telemetry device that is able to record skin sympathetic nerve activity and heart rhythm. This will be used to monitor the change in skin sympathetic nerve activity.
- Echocardiogram a test that uses ultrasound to look at your heart. A recording will be taken of your beating heart.
- Subject Stipend and parking pass will be distributed.

Baseline visit

This visit will take place approximately 7 days after the eligibility visit at the cardiology clinic- this visit may take up to 2 hours. During the baseline visit, your study doctor and study team will collect information about your medical history/exam, including the medications you take.
You will do the following study-related procedures:

- EKG (electrocardiogram) recording of your heart rhythm
- Medical History, height, and weight taken by the study team
- SKNA (Skin Nerve Activity) recording at rest recording of skin nerve activity using skin patches
- SKNA recording during 6 min walk recording of skin nerve activity using skin patches and walking for 6 minutes. If you cannot walk for 6 minutes you will be asked to perform a mental activity test by counting. The test will have you start at 100 and subtract by 3
- AFEQT-AF quality of life questionnaire-several questions about your quality life living with atrial fibrillation
- EQ-5D-5L QOL questionnaire-several questions about your general quality of life
- Labs CBC, BMP, BNP, Catecholamine levels. If you are taking a blood thinner called Coumadin, we will draw an INR level. About a tablespoon of blood will be drawn from an arm vein. The catecholamine blood test requires you to be resting flat for 30 minutes before the blood is drawn
- Pre-op instructions discuss what to do prior to the procedure day – information will be provided
- Apple Watch monitoring will occur from Baseline until a week after the 3- month

visit.
- Parking pass will be distributed

Pre-operative

- You will complete a standard hibiclens wash the night before the procedure and the morning of the procedure.
- You may continue taking all your medications the day of your procedure.
- Do not eat or drink after midnight except for taking a small sip of water for your meds.
- Will be instructed to have a driver the day of the procedure
- Share Health App Data to study-dedicated iPhone used only by the research team

Procedure Day Visit - Lead Placement

This visit will take place at Cedars Sinai Medical Center. You should expect to stay for the day. One of the study doctors will perform the procedure. You will have the lead placed under the skin of your left chest. The implant of the lead just under the skin is experimental.

Your study doctor will make a small puncture on your left upper chest area and position the lead under the skin. A couple of inches of the lead are inside the skin while the remaining portion of the lead is outside of the skin and will be connected to the neurostimulator. The lead will be stitched in place.

The procedure should last between 60 and 90 minutes. After the procedure, you will be in a recovery area where you will be randomized to have the neurostimulator on or off for the two weeks of treatment. You will be monitored until the doctors clear you for discharge. You will complete the additional research activities listed below before leaving the hospital.

- EKG recording of your heart rhythm
- Lab INR (blood test to check how thin your blood level is) if you are taking a blood thinner called Coumadin
- Serum Pregnancy test if applicable (women of childbearing potential only)
- Pre-Procedure antibiotic your study doctor will assess any known allergies
- Surgical implant of the lead Procedure to insert the lead

- A picture will be taken of the implant site, no identifying features will be included
- Randomization (after the surgery) you will be assigned randomly to the group that receives therapy or does not receive therapy.
- Telemetry monitoring continuous heart rhythm monitoring while you are in the hospital
- Neuro-Stimulator testing checking the settings will be performed
- SKNA recording at rest recording of skin nerve activity using skin patches
- Discharge patient teaching instructions how to care for the dressing/programmer/who to call
- Mobile Cardiac Telemetry-small heart rhythm recording patch you will wear for the next 7 days
    - Preventice Body Guardian Mini Plus - a non-invasive mobile cardiac telemetry device that is able to record heart rhythm. This will be used to monitor and detect atrial fibrillation episodes.
    - Bittium Faros – a non-invasive mobile cardiac telemetry device that is able to record skin sympathetic nerve activity and heart rhythm. This will be used to monitor the change in skin sympathetic nerve activity.
- Subject Stipend and parking pass will be distributed

Post-operative

- Programming of the device is completed
- Discharge patient teaching
- Apple Watch monitoring will occur until the 3 Month Visit 7-day Mobile Cardiac Telemetry is complete.

1- week visit

This visit will take place one week after the lead implant procedure at the cardiology clinic and may last up to 90 minutes.

- EKG recording of your heart rhythm
- SKNA recording at rest recording of skin nerve activity using skin patches
- SKNA recording during 6 min walk recording of skin nerve activity using skin patches and walking for 6 minutes.
- If you cannot walk for 6 minutes you will be asked to perform a mental activity test by counting. The test will have you start at 100 and subtract by 3 for two minutes.
- Neuro-Stimulator testing checking the settings will be performed
- Mobile Cardiac Telemetry-small heart rhythm recording patch you will wear for the next 7 days
    - Preventice Body Guardian Mini Plus - a non-invasive mobile cardiac telemetry device that is able to record heart rhythm. This will be used to monitor and detect atrial fibrillation episodes.
    - Bittium Faros – a non-invasive mobile cardiac telemetry device that is able to record skin sympathetic nerve activity and heart rhythm. This will be used to monitor the change in skin sympathetic nerve activity.
- Apple Watch monitoring will occur until the 3 Month Visit 7-day Mobile Cardiac Telemetry is complete.
- Subject Stipend and parking pass will be distributed

2- week visit

This visit will take place at the cardiology clinic and may last up to 90 minutes.

- EKG recording of your heart rhythm
- SKNA recording at rest recording of skin nerve activity using skin patches
- SKNA recording during 6 min walk recording of skin nerve activity using skin patches and walking for 6 minutes.
- If you cannot walk for 6 minutes you will be asked to perform a mental activity test by counting. The test will have you start at 100 and subtract by 3 for two minutes.
- Neuro-Stimulator testing checking the settings will be performed
- Remove Mobile Cardiac Telemetry devices
- Removal of the lead - one of the study doctors will remove the lead
- Initiate 7-day mobile cardiac telemetry patch
- Apple Watch monitoring will occur until the 3 Month Visit 7-day Mobile Cardiac Telemetry is complete.
- Parking pass will be distributed

3- week visit

This visit will take place at the cardiology clinic and may last up to 2 hours.

- Remove 7-day monitoring patch
- EKG recording of your heart rhythm
- Neuro-Stimulator testing checking the settings will be performed
- SKNA recording at rest recording of skin nerve activity using skin patches
- SKNA recording during 6 min walk recording of skin nerve activity using skin patches and walking for 6 minutes.
- If you cannot walk for 6 minutes you will be asked to perform a mental activity test by counting. The test will have you start at 100 and subtract by 3 for two minutes.
- Echocardiogram a test that uses ultrasound to look at your heart. A recording will be taken of your beating heart
- AFEQT-AF quality of life questionnaire-several questions about your quality life living with atrial fibrillation
- EQ-5D-5L QOL questionnaire-several questions about your general quality of life
- Apple Watch monitoring will occur until the 3 Month Visit 7-day Mobile Cardiac Telemetry is complete.
- At the initial Week 3 Visit, the PI will disclose to the subject what group they are in. If they are in the control group, they will be offered an option to crossover to the experimental group and will complete the following:
    - Labs (CBC, BMP). If you are taking a blood thinner called Warfarin, we will draw an INR level. About a tablespoon of blood will be drawn from an arm vein.
    - Pre-op instructions discuss what to do prior to the procedure day – information will be provided
    - If you decide that you do not want to cross over to the treatment group, you will not complete additional labs nor receive pre-op instructions at this visit.
- Subject stipend and parking pass will be distributed

3-month visit

This visit will take place at the cardiology clinic and may last up to 2 hours. The 3-month visit will take place for all subjects in the experimental group and those in the control group that do not wish to cross over to the experimental group.

- EKG recording of your heart rhythm
- SKNA recording at rest recording of skin nerve activity using skin patches
- SKNA recording during 6 min walk recording of skin nerve activity using skin patches and walking for 6 minutes
- If you cannot walk for 6 minutes you will be asked to perform a mental activity test by counting. The test will have you start at 100 and subtract by 3 for two minutes.
- Echocardiogram a test that uses ultrasound to look at your heart. A recording will be taken of your beating heart
- Initiate 7-day mobile cardiac telemetry
    - Preventice Body Guardian Mini Plus - a non-invasive mobile cardiac telemetry device that is able to record heart rhythm. This will be used to monitor and detect atrial fibrillation episodes
    - Bittium Faros – a non-invasive MCT device that is able to record skin sympathetic nerve activity and heart rhythm. This will be used to monitor the change in skin sympathetic nerve activity.
- AFEQT-AF quality of life questionnaire-several questions about your quality life living with atrial fibrillation
- EQ-5D-5L QOL questionnaire-several questions about your general quality of life
- Labs CBC, BMP, BNP, Catecholamine levels. About a tablespoon of blood will be drawn from an arm vein. The catecholamine blood test requires you to be resting flat for 30 minutes before the blood is drawn
- Subject Stipend and parking pass will be distributed
- Remove Sharing Apple Health Data with Principal Investigator after one week ofMobile Cardiac Telemetry monitoring. Cedars-Sinai Apple ID and study data will be removed from devices by Cedars-Sinai IT Support (EIS)

All procedures, labs, and test performed are considered experimental are being done for research purposes. The total amount of blood drawn for the entire study is approximately 2 tablespoons. Your blood will be drawn by an experienced blood drawer.

Apple Watch and Apple iPhone

Previous studies have shown that the Apple Watch is able to detect episodes of atrial fibrillation. The Apple Watch will be given to all subjects during Baseline Visit along with an iPhone (6s or later models). The Watch will monitor your vitals and be connected to the HealthApp and our study- dedicated iPhone from your Baseline visit until the completion of the 3 Month Visit 7-day Mobile Cardiac Telemetry. We will set up the Watch and iPhone on-site and data transmission will occur as long as you wear the Apple Watch and are connected to the iPhone. The Watch and iPhone will be configured to an Apple ID created for the research study by Cedars-Sinai Enterprise Information Services (EIS). This Apple ID is not associated with your medical record or any subject identifiable information and will solely be used to connect the iPhone to the Watch. This will allow the Health App to share your vitals recorded by the Apple Watch to our study-dedicated iPhone during the specified timepoints. Only the research team will be notified if the Watch indicates AF episodes.

In the event that you would like to use your personal Apple devices for our Apple Watch monitoring given that they are appropriate for use, which will be determined by the research staff, you are consenting to share your Apple Health data app with the Principal Investigator and research staff. If you choose to share your personal Apple devices with the research staff, you are to disclose subject identifiable information including your phone number and Apple ID. This information will only be accessible to the Principal Investigator and research staff. Any collected data from the Apple Health Data app will be de-identified prior to data entry and storage.

If the research Apple Watch and/or iPhone are lost, damaged, or stolen, you will not be financially responsible and our site may provide a replacement for either device. If you decide to withdraw or discontinue from the study after Randomization, you will be able to keep the Apple Watch and iPhone.

How long will you be in the study?

We think you will be in this study for/until about 4-5 months. The total time may includes 7 study visits or 12 study visits depending on the treatment group you will be randomized into. After each procedure, we would like you to visit the office/clinic for follow-up exams.

3. WHAT ARE THE POSSIBLE RISKS?

Risks of common medical procedures performed solely for research purposes are described in a table attached to the end of this consent form as an Appendix. Side effects and risks of standard of care procedures are not described in this consent form.

This section describes the possible risks and/or discomforts we anticipate you could experience that are related to the study procedures. The possibility of these risks may increase in the setting of a second procedure and follow-up visits.

Unknown Risks
There may be other side effects or risks that we cannot predict. Many side effects may go away shortly after the study medication or procedure is stopped. However, in some cases they can be serious, long-lasting, permanent, and/or fatal.

Likely, Some May Be Serious (*Occurs in greater than 20% and up to 100 % of people***)**

- Pain, tenderness, or mild to moderate swelling and/or bruising around the skin where the implant is placed
- Pain from lying on the table during the procedure(s)
- EKG – patches may cause skin irritation and redness
- Blood draw – may cause pain, redness, bruising at the puncture site and rarely infection.
- SKNA recording – patches may cause irritation and redness
- Echocardiogram – gel may be cold to the skin
- Apple Watch – wristband and/or watch may cause skin irritation
- The mobile cardiac telemetry recording patches– may cause redness, skin irritation during the time you are wearing it.
- Questionnaires – may feel uncomfortable answering the questions. Tell us if you feel uncomfortable and you can stop anytime.
- 6 minute walk – you may become tired during the 6 minute walk. You may stop at any time.
- Mental Math test - counting back from 100 and subtracting 3 might be uncomfortable.

Go slow and know that you can stop at any time.

Less Likely, Some May Be Serious (*Occurs in >3% - 20 % of people)*

- Stimulation changes over time, this could be felt as a shock or tingling
- Stimulation of nerves in your chest area
- Change in position of the lead, skin irritation at the insertion site
- Parts of the system may stop working

Rare AND Serious (*Occurs in 3% or less of people* ***and*** *may require hospitalization or may be irreversible, long-term, life-threatening or fatal***)**

- Allergic reaction
- Your body rejects the implanted materials or antibiotic
- If the ScNS lowers your heart rate too much, you may experience symptoms of low blood pressure, dizziness, fatigue, fainting requiring medical care. You will be monitored closely by the Mobile Cardiac Telemetry for heart rhythm 24/7. The study team will be informed of the occurrence of low heart rate or other rhythm disorders.
- Bleeding
- Infection – you will have an antibiotic prior to the implant and may receive additional doses after the implant.
- Stroke – If you are on a blood thinner, your study will manage your medication according to standard care to minimize the risk of stroke and bleeding
- Death

Many previous studies, including that from our laboratory, show that the nerve activity is responsible for triggering atrial fibrillation in canine models and in humans. Reducing the nerve activity may help control atrial fibrillation. One way to reduce nerve activity is to take drugs, such as beta blockers. That is why beta blockers (metoprolol, propranolol etc) are commonly used in patients with atrial fibrillation. However, for a minority of patients, beta blockers alone are insufficient. Additional therapy may be needed in the latter group of patients to reduce nerve activity and control atrial fibrillation. Over the past 15 years, we worked to develop canine models of spontaneous atrial fibrillation. We then surgically ablated the source of the nerve activity (stellate ganglion) in those canine models and showed that the atrial fibrillation is much better controlled. However, that surgical procedure is invasive and may have significant side effects. We subsequently discovered a much less invasive method to reduce nerve activity by stimulating the nerves under the skin. Those nerves connect directly to the stellate ganglion.

When the nerves are stimulated, the stellate ganglion is activated. Rapid activation of the stellate ganglion causes it to remodel itself and stop firing. Therefore, stimulating the nerves under the skin can control atrial fibrillation in canine models. However, we do not know if it works in humans. That is why we are doing this research project to test the hypothesis that stimulating the nerves under the skin can control atrial fibrillation.

Follow-up Visit for Discontinuing Participants

While you are free to discontinue your participation at any time, we encourage you to complete a Final Study Visit. During this visit, we will conduct tests to collect safety data, and discuss any information that may be important to share with your treating physician.

4. ARE THERE BENEFITS IN TAKING PART IN THE STUDY?

If you agree to take part in this research study, there may or may not be direct medical benefit to you. The possible benefits of taking part in the research study are better control of atrial fibrillation and reduce the symptoms you experience with atrial fibrillation. However, no benefit is guaranteed. It is possible that your condition may remain unchanged or even get worse.

We hope the information learned from this research study will benefit other individuals with atrial fibrillation in the future by helping us to learn whether nerve stimulation reduces the symptoms experienced with atrial fibrillation.

5. WILL I BE INFORMED OF RESEARCH RESULTS?

The imaging procedure(s) in this study are for research purposes only. However, the techniques used are the same as those used in standard clinical imaging procedures. The imaging results may be shared with you and may be placed in your Cedars-Sinai medical record.

All the research tests done in this study follow standard clinical procedures and are performed in certified clinical labs. These test results may be shared with you and may be placed in your Cedars-Sinai medical record.

Unanticipated Incidental Findings

If, unexpectedly, we find that results of your research procedures could suggest important medical information and we determine there is something you or your doctors can do in response to this finding, we will contact you using the last contact information provided by you. If necessary, we may recommend additional clinical testing to confirm the research finding. The cost of any additional testing and any related treatment will be your responsibility.

6. WHY WOULD MY PARTICIPATION BE STOPPED?

Your participation in this study may be stopped at any time by the researcher or the sponsor without your consent for any reason, including:

- Pregnancy
- Significant non-compliance to study protocol
- If any clinical adverse event (AE), laboratory abnormality, or other medical condition or situation occurs such that continued participation in the study would not be in the best interest of the participant
- Disease progression which requires discontinuation of the study intervention
- If the participant meets an exclusion criterion (either newly developed or not previously recognized) that precludes further study participation
- Participant unable to receive subcutaneous nerve stimulation after the electrode is implanted for any reason.

7. ARE THERE ANY OTHER OPTIONS?

Your participation is voluntary, so you have the right to decline to participate or to withdraw from this research study at any time without any penalty or loss of benefits to which you would be entitled outside of the study. Choosing not to participate will not affect the care you receive at Cedars-Sinai Health System.

If you decide not to take part in this study, you have other choices. For example:

- You may choose to be treated following the usual clinical approach such as taking medications to treat and/ or control your atrial fibrillation.
- Your doctor may recommend a procedure called ablation. This procedure uses radiofrequency energy or freezing to scar areas in your heart that may be involved in with your heart rhythm problem. This procedure can prevent the abnormal signals or rhythms from moving through the heart
- You may choose to take part in a different study at CSMC or elsewhere, if one is available
- You could decide not to be treated.

The researcher will discuss these options and their risks and benefits with you.

8. WILL MY INFORMATION BE KEPT CONFIDENTIAL?

We will do our best to make sure that the personal information collected as part of this study is kept private. However, we cannot guarantee total privacy. A copy of your research consent and authorization forms may be filed in your electronic medical record at CSMC. Your personal information may be given out if required by law. If information from this study is published or presented at scientific meetings, your name and other identifiable personal information will not be used. Organizations that may look at and/or copy your medical records for research oversight, quality assurance, and data analysis include: accrediting agencies, government and regulatory groups (such as Food and Drug Administration (FDA), Office for Human Research Protections (OHRP), National Institutes of Health etc.), safety monitors, companies that sponsor the study, and authorized representatives of the sponsor. The data collected in the study will be given to the National Institutes of Health after deleting your personal information.

Attached to this consent form is an "Authorization Form" that outlines with whom your information may be shared for the purposes of this research and under what circumstances.

We might share your information and/or research samples collected in this study with other researchers at Cedars-Sinai, other academic institutions, or third-party commercial entities for future research without additional informed consent from you. Information that identifies you will be removed and will not be shared with other researchers or anyone outside of Cedars-Sinai.

A description of this clinical trial will be available on http://www.ClinicalTrials.gov, as required by U.S. Law. This Website will not include information that can identify you. At most, the Website will include a summary of the results. You can search this Website at any time.

Protections from Forced Disclosures (Subpoenas) – Certificates of Confidentiality

To further protect your private identifiable information, we intend to apply for a Certificate of Confidentiality (Certificate) from the federal government.

This research is covered by a Certificate of Confidentiality from the National Institutes of Health. The researchers with this Certificate may not disclose or use information, documents, or biospecimens that may identify you in any federal, state, or local civil, criminal, administrative, legislative, or other action, suit, or proceeding, or be used as evidence, for example, if there is a court subpoena, unless you have consented for this use.

Information, documents, or biospecimens protected by this Certificate cannot be disclosed to anyone else who is not connected with the research except, if there is a federal, state, or local law that requires disclosure (such as to report child abuse or communicable diseases but not for federal, state, or local civil, criminal, administrative, legislative, or other proceedings, see below); if you have consented to the disclosure, including for your medical treatment; or if it is used for other scientific research, as allowed by federal regulations protecting research subjects.

You should understand that a Certificate of Confidentiality does not prevent you from voluntarily releasing information about yourself or your involvement in this research. If you want your research information released to an insurer, medical care provider, or any other person not connected with the research, you must provide consent to allow the researchers to release it.

The Certificate of Confidentiality will not be used to prevent disclosure as required by federal, state, or local law such as child abuse and neglect, or harm to self or others.

The Certificate of Confidentiality will not be used to prevent disclosure for any purpose you have consented to in this informed consent document such as including research data in the medical record.

9. WHAT IF I BECOME ILL OR INJURED BECAUSE OF TAKING PART IN THIS STUDY?

Contact your study doctor at once if you feel that you are ill or have been injured because of taking part in this study. If it is a medical emergency, call 911 or go to an emergency room. Promptly notify your study doctor of your situation at the phone number listed on page 1 of this consent form.

Who pays for my research related illness or injury?
Cedars-Sinai has no plans to pay for costs associated with the treatment of research-related injury or illness. We will make every effort to seek reimbursement from your health plan. However, you will be responsible for any deductibles and co-payments required under your health plan and for any claims ultimately denied by your health plan. Financial assistance may be available under Cedars-Sinai's Charity Care Policy and Procedure. If you feel that you have had a research-related injury and need financial assistance, please contact the IRB Office at 310-423-3783. You do not waive any of your legal rights by signing this form.

10. FINANCIAL CONSIDERATIONS

Costs of Participation

You and your insurance company will not be charged for your participation in this research study. The Sponsor will cover the cost of all items, drugs and services required by this study, including any procedures required by the study that may be standard of care.

Compensation for Participating

You will be paid $100 for each of the following visits: eligibility visit, procedure day, 1-week visit, and 3 week visit and $200 at the 3 month visit. You will be paid after the completion of these visits. The experimental group will receive a potential compensation of $600 and the

control group will receive a potential compensation of $900 for completing the whole study. If you do not complete the entire research study, you will only be paid for those visits and procedures you do complete. You may be required to complete a W-9 Form in order to receive payment. The W-9 Form will be maintained by our accounting department at Cedars-Sinai.

Although any amount of payment may be reportable (check with a tax professional if you have questions about your obligations), if the total payment by Cedars-Sinai is $600 or more in a calendar year, a 1099 Form will be filed with the IRS in accordance with federal tax law.

Additionally, enrolled subjects will be given an Apple Watch and iPhone for AF monitoring during the Baseline visit. After the study is complete, patients will be able to keep their Apple Watch and iPhone.

If you are a Cedars-Sinai employee, you should provide your employee identification number to the research team so that your payment can be appropriately processed through Payroll. For your own protection and to comply with tax laws, your payment for participation will be reported to the IRS together with other compensation you receive from Cedars-Sinai.

Compensation will be managed by a private company to issue a debit card onto which your compensation for research participation will be loaded. The funds will generally be available within 1 business day after you complete each study visit. To be able to issue you a debit card, we will need to share your name, address, social security number, and date of birth with the private company contracted to issue and manage the debit card. All information is stored in a secure fashion and is deleted from the debit card system once the study has been completed and the funds on the card have been exhausted. The private company will not share your information with any other third parties. Please refer to the Cardholder Information Handout that will be provided with your stipend card for fees that may be associated with the use of the card and other important details.

Financial Interest in the Research

The PI and institution have no potential financial conflict of interest with respect to this study.

11. WHAT IF I HAVE QUESTIONS OR PROBLEMS?

Please contact the investigator listed on the first page of this form for questions or concerns about the research.

If you have questions, problems, or concerns that you want to discuss with someone who is not associated with this study, or want to offer suggestions or feedback, please contact:

Cedars-Sinai Human Research Protection Program (HRPP) Phone: (310) 423-3783
Email: ResearchConcerns@cshs.org

The Cedars-Sinai HRPP has been established to protect the rights and welfare of research participants. You may also contact the Cedars-Sinai HRPP if you want to offer input or obtain information regarding the study.

12. CONSENT PROVISIONS

If you sign this form below, it means that:

(1) You have taken the time to carefully read and understand the information presented in this informed consent form; you should discuss it with others, and if appropriate seek a second opinion to make an informed decision;

(2) The information concerning the research study and its involved procedures has been fully explained to you and your questions have been answered to your satisfaction;
(3) You have received and understand all of the information you desire regarding your participation in the research study;
(4) You have considered the potential risks, any anticipated benefits and alternatives (and their relative risks and benefits) of participation;
(5) You are voluntarily agreeing to participate in this research study;
(6) You understand that by consenting to participate in the research, you are not giving up any of your legal rights (other than the postponement of your access to certain health information as described in this informed consent form);
(7) You understand that you have the right to be informed of significant new findings related to this research study which may affect your willingness to continue participating in this study; and
(8) You have been provided with a copy of the "Experimental Subject's Bill of Rights", if applicable to this research study, and have been provided with an opportunity to ask questions regarding the Bill of Rights.

We will give you a copy of this signed and dated consent form and the Experimental Subject's Bill of Rights.

SIGNATURE PAGE

Consent Form for Research

SIGNATURE BY THE PARTICIPANT: *I hereby agree to participate in the research study described to me during the informed consent process and described in this informed consent form.* ***You will be given a signed copy of this form.***

Name of Participant (Print)	Signature	Date Signed

SIGNATURE BY THE INVESTIGATOR: *I attest that all the elements of informed consent described in this form have been discussed fully in non-technical terms with the participant. I further attest that all questions asked by the participant were answered to the best of my knowledge.*

Name of Investigator (Print)	Signature	Date Signed

SIGNATURE BY THE INTERPRETER/WITNESS

(Signature of an interpreter is only required when a non-English speaking subject is consented with the assistance of an interpreter and an IRB-approved 'short form.' The witness may be any person who is conversant in both English and the language of the Non-English speaking subject, such as the interpreter (the certified hospital interpreter), study staff, a family member, or other person. The witness signs the consent forms to confirm that the oral interpretation occurred.)

Name of Witness (Print)	Signature	Date Signed

CEDARS-SINAI MEDICAL CENTER

APPENDIX: EXPERIMENTAL SUBJECT'S BILL OF RIGHTS

In accordance with California Health and Safety Code 24172, any person who is required to consent to participate as a subject in a research study involving a medical experiment or who is requested to consent on behalf of another has the right to:

1. Be informed of the nature and purpose of the experiment.

2. Be given an explanation of the procedures to be followed in the medical experiment, and any drug or device to be utilized.

3. Be given a description of any attendant discomforts and risks to the subject reasonably to be expected from the experiment.

4. Be given an explanation of any benefits to the subject reasonably to be expected from the experiment, if applicable.

5. Be given a disclosure of any appropriate alternative procedures, drugs or devices that might be advantageous to the subject, and their relative risks and benefits.

6. Be informed of the avenues of medical treatment, if any, available to the subject after the experiment if complications should arise.

7. Be given an opportunity to ask any questions concerning the experiment or the procedure involved.

8. Be instructed that consent to participate in the medical experiment may be withdrawn at any time and the subject may discontinue participation in the medical experiment without prejudice.

9. Be given a copy of any signed and dated written consent form used in relation to the experiment.

10. Be given the opportunity to decide to consent or not to consent to a medical experiment without the intervention of any element of force, fraud, deceit, duress, coercion, or undue influence on the subject's decision.

APPENDIX B: Detailed Description of Common Medical Procedures Performed for Research Purposes and Associated Risks

The procedures listed below are often performed as part of routine care for a person with your condition. They are being repeated or performed more frequently as part of this research. However, the risks associated with each procedure should be comparable to what you would experience even if you were undergoing the procedure outside this research study.

Study Procedure	Related Risks
Blood draw: A needle is placed in the vein in your arm to draw blood	Blood drawing may cause some pain and has a small risk of bleeding, bruising, or infection at the puncture site. There is also a small risk of fainting.
Electrocardiogram (ECG): abbreviated as EKG or ECG – is a test that measures the electrical activity of the heartbeat using electrodes (disposable adhesive discs placed on the skin). You will be given an Apple Watch to wear as a second way to monitor your heart rhythm and to detect atrial fibrillation.	There's no pain or risk associated with having an electrocardiogram. When the disposable adhesive discs are removed from your skin, there may be some minor skin discomfort or irritation. You may experience temporary discomfort (pulling on the skin/skin hair) during removal of the patches. This hair may be shaved for patch placement. You may be allergic to the wrist band or the Apple watch.
Physical Exam: Includes height, weight, vital signs (heart rate and blood pressure)	There are no physical risks associated with these procedures.
Concomitant Medications: You will be asked about your previous and current medications that you take.	There are no physical risks associated with these procedures.
Medical History Review: You will be asked about your medical and surgical history with attention to [*Insert as appropriate*: smoking and alcohol habits, menopausal history (females only) and your physical activity]	There are no physical risks associated with this procedure.
6-Minute Walk Test (6MWT): You will be asked to walk for 6 minutes along a designated pathway (a track in the hospital hallway) while being observed by study personnel. You will be observed before, during and after the 6-minute walk by study personnel. Your heart rate and blood pressure will be recorded before and after the test. We will also measure the distance that you are able to walk during the 6 minutes. After the test, you will also be asked a few questions. The test and assessments will take about 10-15 minutes, but no more than 30 minutes total.	There is a rare possibility of fainting, while you perform the 6 Minute walk test. Please note that all medical procedures will be done in the presence of the study Investigator and research team in order to minimize the occurrence of such untoward events.

Pregnancy Test: If you are a woman who is able to become pregnant, [blood/urine] samples will also be used to do a pregnancy test	If your test is positive, you will be told and at that point you should discuss options available with your primary physician.
Questionnaires: You will be asked to complete a AFEQT-AF QOL and EQ-5D-5L QOL questionnaires. On the AFEQT-AF questionnaire we will ask you questions to evaluate to assess the impact of atrial fibrillation on patients and possibly assess changes with treatment. On the EQ-5D-5L questionnaire we will ask you questions about your quality of life. We think it should take about15 minutes to complete the questionnaire.	If you feel uncomfortable or embarrassed answering any question, you may skip it. The questionnaire will be labeled with a unique study number that will link your identity so that only the research team can recognize you
Demographic Information: You will be asked about your age, gender, race, ethnicity	There are no physical risks associated with these procedures.
Echocardiogram: a test that uses ultrasound waves to create a movingpicture that shows how strong your heart muscle is pumping or if there are areas not pumping normally. The picture is much more detailed than an x-ray image and involves no radiation exposure.	You may feel some discomfort similar to pulling off an adhesive bandage when the technician removes the electrodes placed on your chest during the procedure.
7-day mobile cardiac telemetry patch: continuously records and stores heartbeats that are analyzed by certified cardiac technicians.	Skin irritation related to prolonged placement of 7-day Mobile Cardiac Telemetry patch. The patch will be removed, and new ones will be placed on a different site.
Mental Math Test: you will be asked to complete only if unable to complete 6 min walk. The test will have you start at 100 and subtract by 3 for two minutes.	There are no physical risks associated with these procedures.
Skin Nerve Sympathetic Activity: abbreviated as SKNA – is a test that measures the electrical activity of the heartbeat and skin nerve activity using electrodes (disposable adhesive discs placed on the skin). A Bittium Faros MCT monitor and a ME6000 recorder will be used to collect this data.	Skin irritation related to prolonged placement of Bittum Faros adhesive patch. The patch will be removed, and new ones will be placed on a different site.