Electrophysiology measures the electrical activity of a variety of organs, including the eye, brain or heart. In addition to the diagnostic and prognostic procedures that can be accomplished with the use of different electrophysiology techniques, radiofrequency ablation, also known as catheter ablation, is a therapeutic method that utilizes programmed electrical stimulation (PES), targeted at very specific areas of the heart to isolate and ablate any high-functioning cells that are causing irregular electrical pulses.

Cardiac arrhythmias, including atrial fibrillation, atrial flutter and supraventricular tachycardia, are a persistent problem. In particular, atrial fibrillation (AF) is an increasingly common disease that can significantly impact a patient’s quality of life, level of physical activity, and ultimately morbidity and mortality. Treatment of AF has included anti-arrhythmic drugs and anticoagulation therapy, but more recently AF ablation has emerged as a promising treatment strategy that offers the possibility of a lasting cure. Over the last decade, increasing success rates and decreasing complication rates have led to the emergence of ablation as a treatment of choice for AF.

Cardiac ablation typically utilizes programmed electrical stimulation (PES) targeted at very specific area of the heart to isolate and ablate any cells or foci that are causing irregular electrical impulses. Either radiofrequency waves or cryoballoons are most commonly used to cause the actual ablation. In atrial fibrillation, ablation is most often focused on the pulmonary vein (since the ostium of the pulmonary vein is the most common cause of AF) or on the atroventricular node post-pacemaker implantation.

CBSET is a leader in the pre-clinical in vivo evaluation and development of novel diagnostic and therapeutic technologies, and can provide support for all phases of biomedical discovery and development research. CBSET has developed specialized expertise in the GLP or non-GLP evaluation of minimally-invasive cardiac surgical devices, including surgical procedures, imaging, post-operative animal care and electrophysiological endpoints.

CBSET is equipped with a full GE Mac-Lab and Cardiolab recording systems (Prucka system), cardiomodulator unit (MicroPace), ICE imaging (compatible with SOUNDSTAR catheters) and 3D electrophysiological mapping capabilities. Our uniquely skilled technical staff and interventionalists have extensive experience with the placement of catheters, as well as pacing or defibrillator leads in various structures of the heart, along with expertise in the use and evaluation of various electrophysiology catheters (ablation, mesh, mapping and diagnostic) across multiple platforms. These measurements can be combined with imaging and/or hemodynamic evaluation in acute or chronic studies.

In addition, CBSET’s board-certified veterinary pathologists can evaluate and characterize myocardial damage and focal necrosis subsequent to ablation therapy using histological methods.
ABOUT CBSET
CBSET is an AAALAC accredited, not-for-profit, pre-clinical research organization dedicated to research, education, and the advancement of early-stage biomedical technologies. Our mission is to assist in methodologies uniquely suited for novel and innovative treatments for complex diseases. We offer a full range of GLP and non-GLP services, ranging from early product evaluation through lead optimization and pre-clinical safety, to physician assessment and training courses. We specialize in the development and application of techniques in the fields of cardiology, electrophysiology, orthopedics, wound healing, regenerative medicine, endoscopy/laparoscopy, drug and device delivery and safety, cellular therapy, and diagnostic imaging. Our world-renowned regulatory and scientific expertise helps transform early-stage concepts into novel therapies.

CBSET EXPERTISE
Our professionally trained staff and consultants provide expertise for all phases of biomedical discovery and development research including regulatory consulting, veterinary medicine, surgery and minimally invasive surgery, imaging, pharmacokinetics and drug metabolism, drug and device safety, pharmacology, lead optimization, and specialized histopathology and pathology. These individuals provide the basis for successful scientific collaborations, rapid concept advancements, unparalleled consultation services, and expert dissemination of information and findings to regulatory and scientific bodies.

CBSET offers a full range of GLP and non-GLP services, from early product evaluation through lead optimization and pre-clinical safety, to physician assessment and training courses. Our expertise includes:

- Stents/balloons
- Novel catheters/wires
- Robotic-assisted surgery
- Vessel sealing/closure devices
- Heart valve replacement/repair
- Cardiopulmonary bypass
- Beating heart technology
- Electrophysiology devices
- Tissue ablation devices
- Endovascular/NOTES surgery
- Laparoscopic surgery
- Orthopedic devices
- Novel surgical instruments
- Wound healing devices
- GLP training and regulatory consulting

CBSET FACILITIES
CBSET offers an unparalleled, GLP-compliant, 30,000 square foot state-of-the-art facility within minutes of Cambridge, Boston, and Logan International Airport. Our facility includes vivariums, catheterization/imaging labs, and full surgical suites containing the latest equipment for fluoroscopy, echocardiography (TEE/TTE), electrophysiology, IVUS, optical coherence tomography (OCT), endoscopy/laparoscopy, orthopedic surgery, and surgical video recording. CBSET offers dedicated labs for GLP-compliant SEM, specialty histopathology/pathology, metabolism and pharmacokinetics.