

## **Cardiac Electrophysiology Device Implantation Fellowship**

**Name of Institution:** McGill University Health Centre

**Type of Fellowship:** Cardiac Electrophysiology Device Implantation Fellowship

### **Program Information:**

*Number of fellowship positions:* Maximum 1 per year

*Academic affiliation:* McGill University

*Name of hospitals involved in training and % of time spent in each institution:*

Montreal General Hospital 90%

Royal Victoria Hospital 10%

### **Background:**

The McGill University Health Centre (MUHC) is the electrophysiology referral centre for several referral hospitals serving a large geographical area covering a population of greater than 1.75 Million. The MUHC has a long history of device implantation at both the Royal Victoria Hospital (RVH) and the Montreal General Hospital (MGH) sites. In 2007, a new electrophysiology device implantation laboratory was constructed at the MGH and dedicated full time to device implantations. In this laboratory, cardiac electrophysiologists implant over 500 pacemakers and 300 defibrillators per year. In 2011, a new fully equipped state of the art biplane electrophysiology laboratory was added to the electrophysiology suite at the MGH to perform simple and complex catheter ablation procedures. Lead extractions are performed at the MGH electrophysiology laboratory or in the main operating room. Epicardial devices via mini-thoracotomy and surgical ablation are performed in the operating room (MGH or RVH). Specialized electrophysiology clinics exist at both RVH and MGH sites. Specialized device follow-up clinics also exist at both sites and treat over 5000 patients per year. On call coverage for electrophysiology emergencies is provided 24hr per day throughout the year by MUHC electrophysiologists.

### **Mission:**

Our mission is to be a referral centre of excellence in interventional electrophysiology integrated within the Centre of Excellence in Cardiovascular Sciences at McGill University. Our goal is to provide excellence in patient care, research, and education in interventional electrophysiology.

### **Research Activity:**

Clinical research is an integral part of the MUHC electrophysiology program. Research is performed on implantable devices as well as catheter ablation. A number of trials are ongoing or in the process of being planned. Examples of research studies and publications are listed below:

Clinical Studies with MUHC Principal Investigators:

- 1) BRUISE CONTROL : BRidge or continUe coumadIn for device SurgEry randomized CONTROLled Trial  
*Funding Source:* Canadian Institutes of Health Research (CIHR)  
*Principal Investigators:* David H Birnie and **Vidal Essebag**
- 2) A Randomized Ablation-based atrial Fibrillation rhythm control versus rate control Trial in patients with heart failure and high burden Atrial Fibrillation (RAFT-AF)  
*Funding Source:* Canadian Institutes of Health Research (CIHR)  
*Principal Applicant:* Anthony Tang  
*Co-Applicants include:* **Vidal Essebag**
- 3) A longitudinal study to identify factors that trigger ventricular tachyarrhythmias among persons with implanted cardioverter defibrillators  
*Funding Source:* Canadian Institutes of Health Research (CIHR)  
*Principal Applicant:* Mark S Goldberg  
*Co-Applicants include:* **Vidal Essebag and Tom Hadjis**
- 4) A Population-based Analysis of the Effectiveness and Adverse Effects of Medications in Patients with Atrial Fibrillation  
*Funding Source:* Canadian Institutes of Health Research (CIHR)  
*Principal Applicant:* **Louise Pilote**  
*Co-Applicants include:* **Vidal Essebag**

Selected Clinical Studies with MUHC Local Principal Investigators:

- 1) Ventricular tachycardia Ablation vs. eNhanced drug therapy In Structural Heart disease (VANISH)
- 2) Prevention of Arrhythmia Device Infection Trial (PADIT)
- 3) Discerning Symptomatic and Asymptomatic Episodes Pre and Post Radiofrequency Ablation of Atrial Fibrillation (DISCERN-AF)
- 4) A Phase IV, double-blind, placebo-controlled, Canadian multicentre study comparing two treatment strategies of dronedarone administration following ELECTive caRdioversion for prevention of symptomatic Atrial fibrillation recurrence (ELECTRA)
- 5) Resynchronization/Defibrillation for Ambulatory Heart Failure Trial (RAFT)

**Fellowship Program Director:** Vidal Essebag MD PhD FRCPC FACC

**Teaching Faculty:**

Both Dr. Vidal Essebag and Dr. Tom Hadjis were trained in interventional cardiac electrophysiology at Harvard University. Both also have degrees in epidemiology and experience in clinical research. Their clinical expertise includes all aspects of device implantation, ablation, and non-invasive electrophysiology diagnosis and management. Dr. Martin Bernier is another electrophysiologist trained at Harvard who will be starting at the MUHC in July 2011.

**Academic Facilities:**

The majority of pacemaker implantation will occur in the full time dedicated EP procedure room at the MGH site. Devices may also be implanted at the RVH site in the cath laboratory or in the main OR at the MGH site (generally for emergencies or epicardial cases requiring thoracotomy). Pacemaker clinics and electrophysiology clinics are located at both MGH and RVH sites. A list

of recommended books and readings will be provided. Attendance at a national or international conference will be strongly encouraged.

### **Curriculum:**

The 12 month program will provide the fellow with level 2 training in advanced noninvasive arrhythmia management as well as expertise in surgical aspects of pacemaker implantation. The curriculum will include:

- 1) History and physical examination of potential pacemaker malfunction, differential diagnosis of device malfunction.
- 2) Electrocardiography and Holter interpretation of paced electrograms and complex arrhythmias
- 3) Pacemaker and defibrillator interrogation and programming: function as primary operator in at least 200 pacemaker follow-up visits
- 4) Recognition and management of post-implant complications
- 5) Expertise in temporary pacing and electrical cardioversion
- 6) Participation as primary operator (under direct supervision) in at least 100 pacemaker implantations and at least 30 pacemaker system revisions or replacements
- 7) Active participation in all ongoing clinical research trials in electrophysiology including the screening and follow-up of patients enrolled in such trials.
- 8) Contribution to original research with writing and publication of at least one paper to be discussed with electrophysiology supervisor.
- 9) Presentation of research progress at rounds and at annual Cardiology Resident Research Day.
- 10) Required textbook readings will be reviewed at start of fellowship program with regular review and discussion of subjects with supervisor.

### **Fellow Duties and Responsibilities:**

- 1) Responsibility for supervision of inpatient electrophysiology service including admission and discharge of patients admitted under electrophysiology service for elective device implantation.
- 2) On call (from home) for cardiac electrophysiology: generally one weekend and 3 weeknights per calendar month, under supervision of on call electrophysiologist.
- 3) Supervision and teaching of general cardiology residents in pacemaker clinics
- 4) Teaching of cardiology residents during CCU teaching sessions or academic half-days
- 5) Pre-procedure evaluation of patients in outpatient clinics referred for interventional electrophysiology procedures and device implantation.
- 6) Participation in academic activities involving the residents including presentation of rounds
- 7) Attendance at least at one national or international electrophysiology/device conference
- 8) Participation in ongoing research activities with supervised participation in protocol development and manuscript preparation.
- 9) The fellow is encouraged to perform the **International Board of Heart Rhythm Examiners (IBHRE) Cardiac Rhythm Device Therapy Examination for the Physician** following the completion of training (exam held annually in July). For more information see website: <http://www.ibhre.org/ExamInformation/ExamInformation.htm>
- 10) The fellow is encouraged to become a member of the **Heart Rhythm Society**. Affiliate Membership during training is complimentary. For more information see website: <http://www.hrsonline.org/About/Membership/Benefits/index.cfm>