

## **Application form for Fellowship**

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

**Location:** Royal Victoria Hospital  
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Montreal, Quebec  
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**Type of Fellowship:** Heart Function and Heart Transplant

### **Program Information**

*Number of fellowship positions requested:* 1

*Academic affiliation:* McGill University

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

Royal Victoria Hospital 90%  
Montreal General Hospital 10%

### **Background:**

The Heart Function and Transplant Center was created in the year 2000. It is based at the Royal Victoria Hospital site of the McGill University Health Center. It is home to the MUHC Heart Failure Program which offers a complete multi-disciplinary integration of all medical and surgical therapies available to the patient afflicted with heart failure. Within this highly developed platform, patients have access to conventional and protocol-based medical therapies, conventional and alternative surgical therapies, Ventricular Assist Device therapy, and heart, heart-lung, heart-kidney, and heart-liver transplantation. The Center takes referrals of patients from other academic and community heart failure clinics.

The physicians working in the Heart Function Center follow patients on an outpatient and inpatient basis. We offer our patients a multi-disciplinary team approach: physicians and specialized nurses offer state-of-the-art comprehensive care to patients with heart failure, as well as patients requiring heart or multi-organ transplantation or mechanical circulatory support. Along with the help of dieticians, social workers, psychiatrists, and other specialists, patients and their families receive optimum care, education and support to help cope with their illness. Our Heart Function Center acts as a day-hospital during working hours for drop-in visits and administration of intravenous diuretic therapy.

Moreover, heart failure physicians and nurses take 24-hour call and are available at all times to assist our patients in order to minimize emergency visits and hospitalizations. We follow over 1000 patients with Heart Failure, Heart Transplant or Ventricular Assist Device and this number continues to grow. We transplant approximately 10 patients per year, whether it be single heart transplants or combined organ transplants, such as heart-liver, heart-kidney or heart-lung transplants.

Research activity:

The MUHC Heart Failure Program maintains an active research program. We participate in many large international, multi-institute clinical trials investigating the role of novel medical and surgical heart failure therapies. We are proud to offer our patients the possibility of enrolling in clinical trials investigating the role of new, cutting-edge therapies for heart failure. Furthermore, we conduct original protocols within our own institution, in collaboration with the Departments of Epidemiology and Cardiac Surgery. Many medical students, internal medicine residents and cardiology fellows have completed clinical projects under our supervision, which have been presented at national and international meetings and published in peer-reviewed journal.

This is a list of the most recent publications from our MUHC Heart Failure Program going back to 2005:

Balashov K, Feldman DE, Savard S, Houde S, Frenette M, Ducharme A, Giannetti N, Michel C, Pilote L. Percent predicted value for the 6-minute walk test: using norm-referenced equations to characterize severity in persons with CHF. *J Card Fail.* 2008 Feb;14(1):75-81.

Arnold M, Howlett JG, Ducharme A, Ezekowitz JA, Gardner MJ, Giannetti N, Haddad H, Heckman GA, Isaac D, Jong P, Liu P, Mann E, McKelvie RS, Moe GW, Svendsen AM, Tsuyuki RT, O'Halloran K, Ross HJ, Sequeira EJ, White M. Canadian Cardiovascular Society Consensus Conference guidelines on heart failure - 2008 update: Best practices for the transition of care of heart failure patients, and the recognition, investigation and treatment of cardiomyopathies. *Can J Cardiol.* 2008 Jan;24(1):21-40.

Krassilnikova M, Deschenes M, Tchevenkov J, Giannetti N, Cecere R, Cantarovich M. Effectiveness of posttransplant prophylaxis with anti-hepatitis B virus immunoglobulin in recipients of heart transplant from hepatitis B virus core antibody positive donors. *Transplantation.* 2007 Jun 15;83(11):1523-4.

V Nguyen, A Ducharme, M White, N Racine, E O'Meara, B Zhang, JL Rouleau and J Brophy, Lack of Long-Term Benefits of a 6-Month Heart Failure Disease Management Program, *J Cardiac Fail* 2007;13:287e293

Houde S, Feldman DE, Pilote L, Beck EJ, Giannetti N, Frenette M, Ducharme A. Are there sex-related differences in specialized, multidisciplinary congestive heart failure clinics? *Can J Cardiol*. 2007 May 1;23(6):451-5.

Potter BJ, Giannetti N, Edwardes MD, Cecere R, Cantarovich M. Calcineurin inhibitor substitution with sirolimus vs. reduced-dose calcineurin inhibitor plus sirolimus is associated with improved renal dysfunction in heart transplant patients. *Clin Transplant*. 2007 May-Jun;21(3):305-8.

Papali A, Giannetti N, Cantarovich M. Unilateral upper extremity edema associated with sirolimus in a heart transplant patient. *Transplantation*. 2007 Jan 27;83(2):240.

Arnold JM, Howlett JG, Dorian P, Ducharme A, Giannetti N, Haddad H, Heckman GA, Ignaszewski A, Isaac D, Jong P, Liu P, Mann E, McKelvie RS, Moe GW, Parker JD, Svendsen AM, Tsuyuki RT, O'Halloran K, Ross HJ, Rao V, Sequeira EJ, White M. Canadian Cardiovascular Society Consensus Conference recommendations on heart failure update 2007: Prevention, management during intercurrent illness or acute decompensation, and use of biomarkers. *Can J Cardiol*. 2007 Jan;23(1):21-45.

Raghavan R, Cecere R, Cantarovich M, Giannetti N. Tricuspid valve replacement after cardiac transplantation. *Clin Transplant*. 2006 Nov-Dec;20(6):673-6.

White M, Ross H, Haddad H, LeBlanc MH, Racine N, Pflugfelder P, Giannetti N, Davies R, Azevedo E, Isaac D, Burton J, Ferguson R, Genest J. Subclinical inflammation and prothrombotic state in heart transplant recipients: impact of cyclosporin microemulsion vs. tacrolimus. *Transplantation*. 2006 Sep 27;82(6):763-70.

Arnold JM, Liu P, Demers C, Dorian P, Giannetti N, Haddad H, Heckman GA, Howlett JG, Ignaszewski A, Johnstone DE, Jong P, McKelvie RS, Moe GW, Parker JD, Rao V, Ross HJ, Sequeira EJ, Svendsen AM, Teo K, Tsuyuki RT, White M; Canadian Cardiovascular Society. Canadian Cardiovascular Society consensus conference recommendations on heart failure 2006: diagnosis and management. *Can J Cardiol*. 2006 Jan;22(1):23-45. Erratum in: *Can J Cardiol*. 2006 Mar 1;22(3):271.

Dipchand A, Cecere R, Delgado D, Dore A, Giannetti N, Haddad H, Howlett J, Leblanc MH, Leduc L, Marelli A, Perron J, Poirier N, Ross H. Canadian Consensus on cardiac transplantation in pediatric and adult congenital heart disease patients 2004: executive summary. *Can J Cardiol*. 2005 Nov;21(13):1145-7.

Mardigyan V, Giannetti N, Cecere R, Besner JG, Cantarovich M. Best single time points to predict the area-under-the-curve in long-term heart transplant patients taking mycophenolate mofetil in combination with cyclosporine or tacrolimus. *J Heart Lung Transplant*. 2005 Oct;24(10):1614-8.

Potter B, Giannetti N, Cecere R, Cantarovich M. Long-term calcineurin inhibitor "holiday" using daclizumab in a heart transplant patient with acute renal dysfunction. *J Heart Lung Transplant*. 2005 Aug;24(8):1126-8.

Nguyen V, Cantarovich M, Cecere R, Giannetti N. Tricuspid regurgitation after cardiac transplantation: how many biopsies are too many? *J Heart Lung Transplant*. 2005 Jul;24(7 Suppl):S227-31.

White M, Haddad H, Leblanc MH, Giannetti N, Pflugfelder P, Davies R, Isaac D, Burton J, Chan M, Azevedo E, Howlett J, Ignaszewski A, Busque S, Cantarovich M, Ferguson R, Genest J, Ross H. Conversion from cyclosporine microemulsion to tacrolimus-based immunoprophylaxis improves cholesterol profile in heart transplant recipients with treated but persistent dyslipidemia: the Canadian multicentre randomized trial of tacrolimus vs cyclosporine microemulsion. *J Heart Lung Transplant*. 2005 Jul;24(7):798-809.

Potter BJ, Giannetti N, Routy JP, Cecere R, Cantarovich M. CD25 saturation rate in heart transplant patients receiving two-dose daclizumab induction. *Transplantation*. 2005 Apr 15;79(7):857-8.

### Mission:

The goal of our Heart Failure and Transplant fellowship program would be to form individuals who will become fully independent in caring for patients with end-stage heart failure. This involves the ability to offer these patients a variety of treatment strategies ranging from education, dietary counseling, evidence-based optimal medical, device and surgical therapies by referring to electrophysiology and cardiac surgery colleagues, to the latest technologies available only through clinical trials. Moreover, trainees should be able to manage post-operative bypass patients with low ejection fraction, post-operative mitral valve surgery and immediate post-operative and long-term follow-up of patients with all types of Ventricular Assist Devices and single heart or combined organ transplant.

The Heart Failure and Transplant fellow will act as a consultant to the general cardiology, internal medicine and surgical service and will not act as first responder. He/she will be available for issues concerning specific heart failure/transplant treatment throughout the hospital, for example tailored therapy with pulmonary artery catheter, urgent pre-transplant inpatient evaluation, management of acute cellular or humoral transplant rejection, inpatient ultrafiltration, complications post-Ventricular Assist Device etc... Therefore the presence of a Heart Failure and Transplant fellow will enhance the experience of core residents in the general cardiology training program. The fellow will contribute to the core teaching of general cardiology and internal medicine residents: formal teaching sessions and teaching around hospitalized complex heart failure and transplant cases will give the residents an opportunity for exposure to basic and novel heart failure therapies.

**Fellowship Program Director:**

Viviane Nguyen, MD, FRCP(C)

Dr. Nguyen completed her internal medicine residency and core cardiology residency training at McGill University. She then trained for one year at the Montreal Heart Institute in Echocardiography and completed a second year at the Brigham and Women's Hospital at Harvard University, Boston in Advanced Heart Disease. She is an American Board Certified level 3 echocardiographer. Her practice consists of taking care of heart failure and transplant patients, echocardiography, clinical teaching and clinical research. Her research interest mainly involves the role of echocardiography in the evaluation and treatment of heart failure, in particular the evaluation of left and right-sided filling pressures by echocardiography in the Heart Function Center, as well as patient selection and optimization for cardiac resynchronization therapy.

**Teaching Faculty:**

Nadia Giannetti, MD, FRCP(C)

Dr. Giannetti completed her internal medicine residency and core cardiology residency training at McGill University. She then trained for one year at the Montreal Heart Institute in Cardiac Rehabilitation and completed a second year at Stanford University, Heart Failure and Transplantation. Her practice consists of taking care of heart failure and transplant patients, clinical teaching and clinical research. Her research interest mainly involves the role of gender issues in heart failure, complications of heart transplantation and the genetics of dilated cardiomyopathy.

Marcelo Cantarovich , MD, FRCP(C)

Dr. Cantarovich is a transplant physician who trained in France. He is the Associate Director of Multi-organ Transplantation. His research interest includes renal complications of long-term transplant patients and use of renal sparing regimens in patients with heart and other solid organ transplantation.

**Academic Facilities**

The Heart Function Center is open for outpatient clinics during working hours every day of the week. Our team consists of 2 Heart Failure and Transplant-trained physicians, Drs. Giannetti and Nguyen, 3 full-time clinical nurses specialized in Heart Failure and pre-transplant evaluation care and 1 full-time nurse specialized in post-transplant care. Our Center is situated in room A4.01 of the Royal Victoria Hospital site of the McGill University Health Center. We are equipped with 4 examining rooms, 1 treatment room

for delivery of intravenous therapy, and 1 echocardiography machine. Our electronic database, Vision C, records all patient visit data and medication prescriptions. This database can be easily queried for research purpose. We also have access to the support and expertise of 2 motivated clinical research nurses who run our research protocols and submit them to ethics committees for review. Therefore, every patient who presents to our clinic presents an opportunity for learning but also for enrollment in any research protocols that the trainee wishes to pursue.

Fellowship training objectives will be distributed to the Heart Failure and Transplant fellow prior to the start of the fellowship. Internet access for perusing is available in the Heart Function Center. Library access is located in Pavilion H4 of the Royal Victoria Hospital for additional reading material and article search assistance.

### **Fellow duties and Responsibilities**

During the 12 months of training, the trainee should complete the following objectives:

- Acquire knowledge of basic and advanced medical, device and surgical therapies for advanced heart disease through the following activities:
- Three outpatient heart failure and one heart transplant clinic per week. Trainee will have his/her own patients whom he/she will follow over the course of the year with an assigned nurse and attending, with access to a secretary.
- One combined Echocardiography-Heart Failure clinic per week involving mainly optimization of cardiac resynchronization therapy and research echocardiograms, under the supervision of Dr. Nguyen
- Learn the process of pre-transplant evaluation, including criteria for listing and required standardized work-up
- Do new consults and round on hospitalized heart failure and transplant inpatients, including patients hospitalized at the Montreal General Hospital
- Post-transplant care with focus on perioperative management, immunosuppressive therapy and treatment of acute cellular or humoral rejection
- Perioperative and follow-up care of patients with mechanical Ventricular Assist Device
- On call responsibility for the heart failure and transplant service with assigned heart failure specialist one in 3 call
- Supervision of residents for issues pertaining to patients hospitalized with Heart Failure, Transplant and Ventricular Assist Devices
- Teaching of residents during CCU teaching sessions or Cardiology fellows academic half-days
- Presentation of patients at the monthly multidisciplinary Heart Transplant meeting for evaluation of transplant candidacy
- Attendance at the combined organ transplant meetings (renal, cardiac, pancreas, liver, lung)
- Participation and presentation in the Heart Function Center bimonthly mortality and morbidity rounds

- Performance of post-transplant surveillance cardiac biopsy in the catheterization laboratory (optional)
- Presentation of topics of interest and journal clubs at the Heart Failure/Transplant weekly academic half-day (shared responsibility with the Cardiac Surgery fellow and attendings)
- Trainee will be expected to complete 2 clinical research projects during the course of the year either on the topic of Heart Failure or Heart Transplant, to present this research at national and international meetings and to publish in peer-reviewed journal. He/she will have access to support from the McGill University Epidemiology Department. Travel, registration and poster printing costs will be covered for abstract presentations. There are numerous meetings which he/she will be encouraged to attend and/or submit abstracts to, namely:
  - The Canadian Cardiovascular Congress
  - The American College of Cardiology
  - The American Heart Association
  - The European Society of Cardiology
  - The International Society of Heart and Lung Transplantation
  - The Canadian Society of Transplantation
  - The Heart Failure Society of America
  - The Canadian Heart Failure Summit
  - La Société Québécoise d'Insuffisance Cardiaque
  - The American Society of Echocardiography

## **Curriculum**

Trainee will be expected to see at least 5 outpatients per clinic and round on a total of 5 hospitalized patients at any time. The bulk of outpatient cases will consist of new heart failure consults and follow-up, pre-transplant/mechanical heart device evaluations and post-transplant routine follow-ups. Inpatient care will mostly consist of cases with decompensated heart failure and medical cardiac/non-cardiac complications or rejection post-transplant. Outpatient visits include scheduled as well as unscheduled visits. Trainee will be expected to read around the cases seen with case presentations at the weekly Heart Failure/Transplant academic half day.

Finally the Heart Failure/Transplant fellow is encouraged to take charge of his/her own education depending on his intended future site and style of practice. The specific needs of each fellow will be assessed by the Heart Failure teaching faculties and training will be tailored to best suit each individual fellow's needs.