



Canadian Journal of
Cardiology

Journal canadien
de cardiologie

www.onlinecjc.ca

*Journal of the
Journal de la*



Canadian
Cardiovascular
Society

Société
canadienne
de cardiologie

Editor-in-Chief

Stanley Nattel, MD, FRCPC, FRSC, FACC, FHRS
Paul-David Chair in Cardiovascular Electrophysiology
Professor of Medicine, University of Montreal/Montreal Heart Institute

Associate Editors

Robert Beanlands
Ottawa, Ontario, Canada

Ross Feldman
St John's, Newfoundland, Canada

John Floras
Toronto, Ontario, Canada

Stephen Frenes
Toronto, Ontario, Canada

Michelle Graham
Edmonton, Alberta, Canada

Robert Hegele
London, Ontario, Canada

Marc Jolicœur
Montréal, Québec, Canada

Gavin Oudit
Edmonton, Alberta, Canada

Allan Skanes
London, Ontario, Canada

Eric Thorin
Montréal, Québec, Canada

David Waters
San Francisco, California, USA

Editor Emeritus

Eldon Smith
Calgary, Alberta, Canada

Editorial Board

Gregor Andelfinger
Montréal, Québec, Canada

Robert Anderson
*Newcastle upon Tyne,
United Kingdom*

Todd Anderson
Calgary, Alberta, Canada

Rakesh Arora
Winnipeg, Manitoba, Canada

Anita Asgar
Montréal, Québec, Canada

Rabih Azar
Beirut, Lebanon

Lorenzo Azzalini
Milan, Italy

Olivier Bertrand
Québec, Québec, Canada

David Bewick
Saint-John, New Brunswick, Canada

Michael Borger
Leipzig, Germany

James Brophy
Montréal, Québec, Canada

Warwick Butt
Melbourne, Australia

Mohamed Chahine
Québec, Québec, Canada

Kwan Chan
Ottawa, Ontario, Canada

Aun Yeong Chong
Ottawa, Ontario, Canada

Benjamin Chow
Ottawa, Ontario, Canada

Jafna Cox
Halifax, Nova Scotia, Canada

Nagib Dahdah
Montréal, Québec, Canada

Darryl Davis
Ottawa, Ontario, Canada

Victoria Delgado
Leiden, The Netherlands

Hisham Dokainish
Hamilton, Ontario, Canada

Paul Dorian
Toronto, Ontario, Canada

Jean-François Dorval
Montréal, Québec, Canada

Hank Duff
Calgary, Alberta, Canada

Jocelyn Dupuis
Montréal, Québec, Canada

Jason Dyck
Edmonton, Alberta, Canada

Vladimir Dzavik
Toronto, Ontario, Canada

Joachim Ehrlich
Frankfurt, Germany

Ismail El-Hamamy
Montréal, Québec, Canada

Justin Ezekowitz
Edmonton, Alberta, Canada

Paul Fedak
Calgary, Alberta, Canada

David Fitchett
Toronto, Ontario, Canada

Kenneth Gin
Vancouver, British Columbia, Canada

Chris Glover
Ottawa, Ontario, Canada

Michael Gollob
Ottawa, Ontario, Canada

Martin Green
Ottawa, Ontario, Canada

Milan Gupta
Brampton, Ontario, Canada

Daniel Hackam
London, Ontario, Canada

Robert Hamilton
Toronto, Ontario, Canada

Jeff Healey
Hamilton, Ontario, Canada

Paul Hendry
Ottawa, Ontario, Canada

Junko Honye
Tokyo, Japan

Jonathan Howlett
Calgary, Alberta, Canada

Karin Humphries
Vancouver, British Columbia, Canada

Davinder Jassal
Winnipeg, Manitoba, Canada

Christopher Johnson
Ottawa, Ontario, Canada

Michal Kantoč
Edmonton, Alberta, Canada

Zamaneh Kassiri
Edmonton, Alberta, Canada

Katherine Kavanagh
Calgary, Alberta, Canada

Lorrie Kirshenbaum
Winnipeg, Manitoba, Canada

Merril Knudtson
Calgary, Alberta, Canada

Andrew Krahn
Vancouver, British Columbia, Canada

Shahar Lavi
London, Ontario, Canada

Harold Lazar
Boston, Massachusetts, USA

Jonathon Leipsic
Vancouver, British Columbia, Canada

Howard Leong-poi
Toronto, Ontario, Canada

Peter Leong-Sit
London, Ontario, Canada

Gregory Lip
Birmingham, United Kingdom

Gary Lopaschuk
Edmonton, Alberta, Canada

Laurent Macle
Montréal, Québec, Canada

John Mancini
Vancouver, British Columbia, Canada

Jaimie Manlucu
London, Ontario, Canada

Dante Manyari
Surrey, British Columbia, Canada

Alexis Matteau
Montréal, Québec, Canada

Robert McKelvie
Hamilton, Ontario, Canada

Michael McMurry
Edmonton, Alberta, Canada

Luc Mertens
Toronto, Ontario, Canada

Gordon Moe
Toronto, Ontario, Canada

François-Pierre Mongeon
Montréal, Québec, Canada

Srihari Naidu
Mineola, New York, USA

Arnold Ng
Brisbane, Australia

Manoj Obeyesekere
Malvern East, Australia

Erwin Oechslin
Toronto, Ontario, Canada

Morton Olesen
Copenhagen, Denmark

Raj Padwal
Edmonton, Alberta, Canada

Guillaume Paré
Hamilton, Ontario, Canada

Tianqing Peng
London, Ontario, Canada

Editorial Board - continued

François Philippon
Québec, Québec, Canada

Philippe Pibarot
Québec, Québec, Canada

Geoffrey Pickering
London, Ontario, Canada

Louise Pilote
Montréal, Québec, Canada

Paul Poirier
Québec, Québec, Canada

P. Timothy Pollak
Calgary, Alberta, Canada

Normand Racine
Montréal, Québec, Canada

Dominic Raco
Eiobicoke, Ontario, Canada

Alain Rivard
Montréal, Québec, Canada

Jean Rouleau
Montréal, Québec, Canada

John Ryan
Salt Lake City, Utah, USA

Michael Seidman
Vancouver, British Columbia, Canada

Frank Sellke
Providence, Rhode Island, USA

Sanjay Sharma
London, United Kingdom

Robert Sheldon
Calgary, Alberta, Canada

David Spence
Toronto, Ontario, Canada

Frank Spinale
Charleston, South Carolina, USA

Duncan Stewart
Ottawa, Ontario, Canada

James Arthur Stone
Calgary, Alberta, Canada

Bradley Strauss
Toronto, Ontario, Canada

Oliver Strohmann
Baden-Baden, Germany

Koon Teo
Hamilton, Ontario, Canada

Sheldon Tobe
Toronto, Ontario, Canada

Rhian Touyz
Glasgow, United Kingdom

Jack Tu
Toronto, Ontario, Canada

John Tyberg
Calgary, Alberta, Canada

David Van Wagoner
Cleveland, Ohio, USA

Josef Veselka
Prague, Czech Republic

Robert Welsh
Edmonton, Alberta, Canada

Harindra Wijesundera
Toronto, Ontario, Canada

Arthur Wilde
Amsterdam, The Netherlands

Steve Wilton
Calgary, Alberta, Canada

Bobby Yanagawa
Toronto, Ontario, Canada

Raymond Yee
London, Ontario, Canada

Trainee Editorial Board Members

Martin Aguilar
Montréal, Québec, Canada

Laura Banks
Toronto, Ontario, Canada

Ismail Bouhout
Montréal, Québec, Canada

Guillaume Marquis-Gravel
Montréal, Québec, Canada

Amine Mazine
Toronto, Ontario, Canada

William F. McIntyre
Hamilton, Ontario, Canada

Saman Rezazadeh
Calgary, Alberta, Canada