

diabetes

Diabetes is a universal disease. It knows no political boundaries. What happens anywhere in the world to improve the condition of the diabetic is important to diabetics everywhere else. One of the major reasons for the founding of our Association was that it should aid in the spread of knowledge about the disease and that reason is now finding its fully effective expression in the publication of *Diabetes*.

—Elliott P. Joslin, MD, *Diabetes*, January-February 1952

EDITOR IN CHIEF

K. Sreekumaran Nair, MD, PhD

ASSOCIATE EDITORS

E. Dale Abel, MD, PhD
Sharon G. Adler, MD
Peter J. Dyck, MD
Thomas W. Gardner, MD, MS
Laurie J. Goodyear, PhD
Kathryn M. Haskins, PhD

Gökhan Hotamisligil, MD, PhD
Michael D. Jensen, MD, PhD
Anna Krook, PhD
Lawrence J. Mandarin, PhD
Braxton Mitchell, PhD
Jeffrey E. Pessin, PhD

James R. Sowers, MD
Lori Sussel, PhD
Adrian Vella, MD, FRCP
Nick Wareham, MBBS, PhD, FRCP, FFPHM
SCIENTIFIC EDITOR
Helaine E. Resnick, PhD, MPH

CONSULTING EDITORS

Peter Arner, MD
Per-Olof Berggren, PhD
Anil Bushan, PhD
Andre Carpentier, MD, FRCP
Claudio Cobelli, PhD
Gregory Cooney, PhD
John A. Corbett, PhD
Carolyn Deacon, PhD
Christian Dina, PhD
Mark Febbraio, PhD
Anthony Ferrante, MD
Jose C. Florez, MD, PhD
Toshiro Fujita, MD
Victor Alan Gault, PhD
Carla Greenbaum, MD
James D. Johnson, PhD

Thomas W.H. Kay, MBBS, PhD, FRACP, FRCPA
Mark T. Kearney, MD, FRCP
Jack W. Kent, PhD
Sam Klein, MD
Yogish C. Kudva, MD
Tony K.T. Lam, PhD
Dominic Langin, DVM, PhD
Jian-Xing Ma, MD, PhD
Patrick E. MacDonald, PhD
James Meigs, MD, MPH
L. Charles Murtaugh, PhD
Nicholas Musi, MD
Rama Natarajan, PhD, FAHA, FASN
P. Darrell Neuffer, PhD
Robert O'Doherty, PhD
Mark Peakman, MBBS, BSc, MSc, PhD, FRCPath

Jorge Plutzky, MD
Vincent Poitout, DVM, PhD
Toni Ilana Pollin, PhD
Jun Ren, MD, PhD, FAHA
Michael Roden, MD
Gary J. Schwartz, PhD
Naftali Stern, MD
Katalin Susztak, MD, PhD
Gary Sweeney, PhD
Matthias Tschoep, MD
Antonio Vidal-Puig, MD, PhD
Jianping Weng, MD, PhD
Adam Whaley-Connell, DO, MSPH
Qinglin Yang, MD, PhD
Jianping Ye, MD

AMERICAN DIABETES ASSOCIATION OFFICERS

CHAIR OF THE BOARD

Karen D. Talmadge, PhD

PRESIDENT, MEDICINE & SCIENCE

John E. Anderson, MD

PRESIDENT, HEALTH CARE & EDUCATION

Lurelean B. Gaines, RN, MSN

SECRETARY/TREASURER

Patrick L. Shuler, CPA

CHAIR OF THE BOARD-ELECT

Dwight Holing

PRESIDENT-ELECT, MEDICINE & SCIENCE

Elizabeth R. Seaquist, MD

PRESIDENT-ELECT, HEALTH CARE & EDUCATION

Marjorie Cypress, PhD, RN, CNP, CDE

SECRETARY/TREASURER-ELECT

Robert J. Singley, MBA

VICE CHAIR OF THE BOARD

Janel L. Wright, JD

VICE PRESIDENT, MEDICINE & SCIENCE

Samuel Dagogo-Jack, MD, FRCP

VICE PRESIDENT, HEALTH CARE & EDUCATION

David G. Marrero, PhD

VICE SECRETARY/TREASURER

Richard Farber, MBA

CHIEF EXECUTIVE OFFICER

Larry Hausner, MBA

CHIEF SCIENTIFIC & MEDICAL OFFICER

Robert E. Ratner, MD, FACP, FACE



The mission of the American Diabetes Association is to prevent and cure diabetes and to improve the lives of all people affected by diabetes.

A JOURNAL OF THE AMERICAN DIABETES ASSOCIATION

diabetes

Mission Statement for *Diabetes*

Diabetes publishes original research about the physiology and pathophysiology of diabetes mellitus. Submitted manuscripts can report any aspect of laboratory, animal, or human research. Emphasis is on investigative reports focusing on areas such as the pathogenesis of diabetes and its complications, normal and pathological pancreatic islet function and intermediary metabolism, pharmacological mechanisms of drug and hormone action, and biochemical and molecular aspects of normal and abnormal biological processes. Studies in the areas of diabetes education or the application of accepted therapeutic and diagnostic approaches to patients with diabetes are not published. More information about the journal can be found online at diabetes.diabetesjournals.org.

SUBMISSIONS: *Diabetes* (print ISSN 0012-1797, online ISSN 1939-327X) is owned, controlled, and published monthly by the American Diabetes Association, Inc., 1701 North Beauregard St., Alexandria, VA 22311. *Diabetes* is a registered trademark of the American Diabetes Association.

PERMISSIONS: Copyright © 2013 by the American Diabetes Association, Inc. All rights reserved. Printed in the USA. Requests for permission to reuse content should be sent to Copyright Clearance Center at www.copyright.com or 222 Rosewood Dr., Danvers, MA 01923; phone: (978) 750-8400; fax: (978) 646-8600. Requests for permission to translate should be sent to Permissions Editor, American Diabetes Association, at permissions@diabetes.org.

The American Diabetes Association reserves the right to reject any advertisement for any reason, which need not be disclosed to the party submitting the advertisement.

Commercial reprint orders should be directed to Sheridan Content Services, (800) 635-7181, ext. 8065.

SUBSCRIPTIONS: Single issues of *Diabetes* can be ordered by calling toll-free (800) 232-3472, 8:30 A.M. to 5:00 P.M. EST, Monday through Friday. Outside the United States, call (703) 549-1500. Rates: \$75 in the United States, \$95 in Canada and Mexico, and \$125 for all other countries.

Diabetes is available online at diabetes.diabetesjournals.org. Please call the numbers listed above, e-mail membership@diabetes.org, or visit the online journal for more information about submitting manuscripts, publication charges, ordering reprints, subscribing to the journal, becoming an ADA member, advertising, permission to reuse content, and the journal's publication policies.

Periodicals postage paid at Alexandria, VA, and additional mailing offices.

PRINT ISSN 0012-1797
ONLINE ISSN 1939-327X
PRINTED IN THE USA

POSTMASTER: Send address changes to *Diabetes*, American Diabetes Association, Inc., Journal Subscriptions, 1701 North Beauregard St., Alexandria, VA 22311. Claims for missing issues should be made within 6 months of publication. The publisher expects to supply missing issues free of charge only when losses have been sustained in transit and when the reserve stock permits.

AMERICAN DIABETES ASSOCIATION PERSONNEL AND CONTACTS

EDITORIAL OFFICE DIRECTOR

Lyn Reynolds

PEER REVIEW MANAGER

Jane Lucas

EDITORIAL OFFICE SECRETARIES

Raquel Castillo

Joan Garrett

MANAGING DIRECTOR, SCHOLARLY JOURNAL PUBLISHING

Christian S. Kohler

DIRECTOR, SCHOLARLY JOURNAL PUBLISHING

Heather L. Norton

EDITORIAL MANAGERS

Nancy C. Baldino

Valentina Such

PRODUCTION MANAGER

Amy S. Gavin

TECHNICAL EDITOR

Oedipa Rice

VICE PRESIDENT, MEMBERSHIP & DIRECT RESPONSE MARKETING

Richard Erb

VICE PRESIDENT, CORPORATE ALLIANCES

Nancy Stinson Harris

ADVERTISING MANAGER

Julie C. DeVoss

MANAGER, MEMBERSHIP/ SUBSCRIPTION SERVICES

Donald Crowl

ASSOCIATE DIRECTOR, FULFILLMENT

Caryn Cochran

ADVERTISING REPRESENTATIVES

TMG Custom Media

Nancy Greenwald

(646) 783-3786

The Jackson-Gaeta Group, Inc.

B. Joseph Jackson

Paul Nalbandian

(973) 403-7677