The American Journal of Physiology-Heart and Circulatory Physiology

Editor: W. C. STANLEY

Senior Associate Editor: D. A. KASS

Associate Editors:
I. J. BENJAMIN
M. F. BLAUSTEIN
M. BOND
L. J. DE WINDT
C. DES ROSIERS
I. EHMIOV
N. L. KANAGY
M. KITAKAZE
R. LIANG
G. D. LOPASCHUK
F. A. RECCHIA
J. SASODHMA
A. M. SHEI
W. G. WIER

Consulting Editors:
P. A. BOYDEN
D. GUTTERMAN
R. L. HESTER
S. P. JONES
Y. LIAO
M. L. NISI
M. S. WOLIN

Editorial Board:
C. AALKJAER
E. ASUM
T. AGO
F. AKAR
B. T. ALEXANDER
J. AUCHAMPACH
P. BACKX
C. BAYNES
S. BARMAN
D. BEARD
L. BERTRAND
B. BLAXALL
R. BRANDES
J. BRAYDEN
P. BROOKES
V. BROOKS
Y. BURIELE
C. CABO
H. L. CAJ
J. CANTY, JR.
J. CHATHAM
H. CHENG
N. C. CHAMMONVAT
G. CRYSTAL
D. DAMON
R. DAPNIE
S. DAVIDGE
M. J. DAVIS
B. DAWN
P. DE TOMBE
L. DELBRIDGE
K. DIELSPERGER
R. DORRANCE
H. DUFFY
D. DUNCKER
W. DURAN
J. DYCK
P. EATON
M. E. ESSOP
F. FADJEL
F. FARACI
G. FINK
S. FISHER
I. FLEMIN
J. FRISBEE
Y. FUJIO
A. M. GERDES
J. GLATZ
L. GONZALEZ BOSC
D. N. GRANGER
K. GRIENDLING
A. GUSTAFSSON
S. GUPTA
T. HEIN
G. HEUSCH
J. HILL
M. A. HILL
B. HOFT
J. HOLLANDER
G. HOLZAPFEL
T. HUND
Y. HUO
V. HUXLEY
J. IMIG
M. INATIGIETTA
A. IVETIC
J. JACKSON
W. JACKSON
J. JAGGOR
J. JOHNSON
M. KAPILOFF
Z. KATUSIC
M. KAUPMANN
C. KEVIL
I. KIRSHENBAUM
W. KOCH
R. KORTHUIS
D. KORZICK
R. KUKREJA
D. KORZICK
R. MILLER
T. MINAMINO
B. MITCHELL
S. MIYAMOTO
E. MURPHY
T. MUSCH
C. E. NEGRO
M. T. NELSON
J. NERBONNE
K. OTSU
P. PACHER
P. PAGANO
N. PAOLOCCI
H. PATEL
R. P. PATEL
W. PEARCE
M. PERIAJASMY
S. PHILLIPS
P. PILOSKY
S. POLIZZI
D. POOL
M. PORTMAN
S. D. PRABHU
R. RAMASAMY
T. RESTA
R. S. RICHARDSON
P. ROCIC
B. RODRIGUES
M. SACK
H. SAPIRU
S. S. SOW
S. T. STADLER
M. G. TUMI
L. V. VELKOV
G. VERSLAND
K. W. WEINBERG
N. WESTERHOF
M. WESTFALL
M. WIDLANDSKY
C. WILLIAMS
M. WILIS
L. E. WOLD
F. WULF
J. XU
Y. YUAN
J. YUAN
J. ZHANG
M. ZIMMERMAN
W. ZIMMERMAN
J. ZWEER

Editorial Board:
L. C. SAMUELSON
D. M. POLLOCK
L. C. SAMUELSON

Editorial and Business Correspondence:
AJP-Heart and Circulatory Physiology, 9650 Rockville Pike, Bethesda, MD 20814-3991.

Disclaimer: The statements and opinions contained in the articles of the American Journal of Physiology-Heart and Circulatory Physiology are solely those of the individual authors and contributors and not of the American Physiological Society. The appearance of advertisements in the journal is not a warranty, endorsement, or approval of the products or their safety. The American Physiological Society disclaims responsibility for any injury to persons or property resulting from any ideas or products referred to in any article or advertisement.

Copyright © 2013 by the American Physiological Society. All works are copyrighted and are protected throughout the world under international and Pan-American copyright conventions. No part of this publication may be reproduced in any form, in an electronically accessible form, or transmitted, or translated into any language or computer programming language without the written permission of the publisher. The copyright owner grants to the user a non-exclusive license to photocopy any article for internal or personal use, or the internal or personal use of specific clients, provided such use is not for profit and provided the copier pays the stated per-copy fee to the Copyright Clearance Center Inc., P.O. Box 800, Plymouth Meeting, PA 19462-8001, within the US, or to the appropriate reprographic rights organization in the country of use. The fee code for users of the US is 1522-3188/13 $30.00. The fee code for users of other countries is $30.00. For works published before 1978, permission to photocopy must be obtained from the Copyright Clearance Center Inc., 222 Rosewood Dr., Danvers, MA 01923. Copyright and all rights reserved. Works appearing in this publication prepared by a government employee as part of that person’s official duties are in the public domain. Copyright Law—unless the copies are for general distribution, for advertising, for creating new works, or for resale—provided the per-copy fee is paid through the Copyright Clearance Center, Inc., 222 Rosewood Dr., Danvers, MA 01923.

The American Journal of Physiology-Heart and Circulatory Physiology (ISSN-0363-6135) is published twice monthly online at www.ajpheart.org (ISSN 1522-1539) (two volumes a year) by the American Physiological Society, 9650 Rockville Pike, Bethesda, MD 20814-3991. Subscription Prices (postpaid): For institutional print and online pricing, please see http://www.the-aps.org/publications/subs/. Nonmember individual (online only): $72.00. APS members: online is free. Print back issues when available, through December 2011: Subscribers, $65 each; nonsubscribers, $120 each. Subscriptions from outside the United States are payable in US currency or full equivalent. Subscriptions are accepted on a calendar-year basis only. Periodicals postage paid at Bethesda, MD, and at additional mailing offices.

Copyright © 2013 by the American Physiological Society. Printed in the United States of America by Cadmus Communications—Lancaster Division, Lancaster, PA 17601. The code at the bottom of the first page of an article indicates the copyright owner’s consent that copies of that article may be made beyond that permitted by sections 107 and 108 of the US Copyright Law—unless the copies are for general distribution, for advertising, for creating new works, or for resale—provided the per-copy fee is paid through the Copyright Clearance Center, Inc., 222 Rosewood Dr., Danvers, MA 01923. Copyright and all rights reserved. Works appearing in this publication prepared by a government employee as part of that person’s official duties are in the public domain. Copyright Law—unless the copies are for general distribution, for advertising, for creating new works, or for resale—provided the per-copy fee is paid through the Copyright Clearance Center, Inc., 222 Rosewood Dr., Danvers, MA 01923.