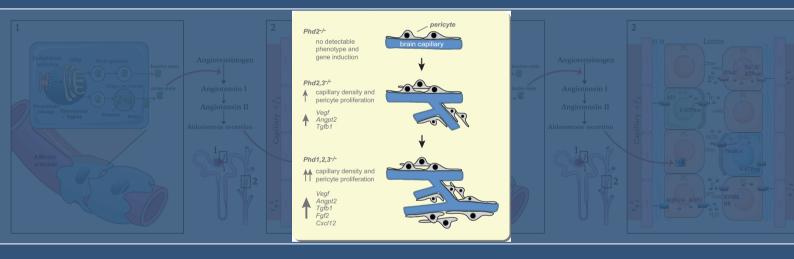


ACTA PHYSIOLOGICA

OFFICIAL JOURNAL OF THE FEDERATION OF EUROPEAN PHYSIOLOGICAL SOCIETIES







PUBLICATION HISTORY

Acta Physiologica 2006-

Acta Physiologica Scandinavica 1940-2005

Skandinavisches Archiv für Physiologie 1889-1939

ACTA PHYSIOLOGICA

Editorial Board

Cheif Editor

Pontus B. Persson, Berlin

Editors

Cardiovascular Physiology - Frantisek Kolar, Prague, Holger Nilsson, Gothenburg and William E. Louch, Oslo and Morten Bækaard Thomsen, Copenhagen

Cell Biology - Sari Lauri, Helsinki

Chronobiology and Endocrinology - Charna Dibner, Geneva

Exercise Physiology- Jan Henriksson, Stockholm

Gastrointestinal Physiology - Markus Sjöblom, Uppsala

Inflammation - Joakim Ek, Gothenburg

Metabolism and Nutritional Physiology - Karl-Heinz Herzig, Oulu

Muscle Physiology - Gabriele Pfitzer, Cologne

Nervous System - Alexej Verkhratsky, Manchester

Renal Physiology - Boye L. Jensen, Odense

Respiratory and Comparative Physiology - Mikko Nikinmaa, Turku

Signalling - Fredrik Elinder, Linköping

Editorial Board

Michael Axelsson, Gothenburg
Zafar I. Bashir, Bristol
Marc van Bilsen, Maastricht
Rene Bindels, Nijmegen
Ellen E. Blaak, Maastricht
Andrew G. Cresswell, Brisbane
Gerald F. DiBona, Iowa City
Carlos Dieguez, Santiago de Compostela
Michael Fähling, Berlin
Simon Gandevia, Sydney
Paul L. Greenhaff, Nottingham
Thomas Gustafsson, Stockholm
Peter Hegyi, Szeged

Editorial Office

Carola Neubert, Editorial Secretary Institut fuer Vegetative Physiologie Charité-Universitaetsmedizin Berlin Campus Charité Mitte

Charitéplatz 1

D-10117 Berlin, Germany Email: carola.neubert@charite.de

Tel.: +49 30 450 528162 Fax: +49 30 450 7528972 Per Hellstrand, Lund Trent J Herda, Lawrence Roland S. Johansson, Umeå Terje Larsen, Tromsø En Yin Lai, Hangzhou Jens Leipziger, Aarhus Hugo H. Marti, Heidelberg Lars Oreland, Uppsala Antonios Pantazis, Linköping Andreas Patzak, Berlin Helle Prætorius, Aarhus Rolf K. Reed, Bergen Marjan Slak Rupnik, Vienna Mikko P. Tulppo, Oulu Ger Van der Vusse, Maastricht Olli Vuolteenaho, Oulu Tobias Wang, Aarhus

Production Editor: Arun Jose Email: apha@wiley.com

AIMS AND SCOPE

Acta Physiologica is an important forum for the publication of high quality original research in physiology and related areas by authors from all over the world. Acta Physiologica is a leading journal in all aspects of the science of physiology. The Journal publishes full length original articles on important new observations as well as reviews and commentaries. Acta Physiologica is the official journal of the Federation of European Physiological Societies.

Manuscripts should be submitted online at http://mc.manuscriptcentral.com/aph, see instructions on the inside back cover. Other material should be sent to the Chief Editor, Pontus B. Persson, Acta Physiologica, Hessische Str. 3-4, 10115 Berlin, Germany.

DISCLAIMER

The Publisher, Society and Editors cannot be held responsible for errors or any consequences arising from the use of information contained in this journal; the views and opinions expressed do not necessarily reflect those of the Publisher, Society and Editors, neither does the publication of advertisements constitute any endorsement by the Publisher, Society and Editors of the products advertised.

COPYRIGHT AND COPYING

Copyright © 2021 Scandinavian Physiological Society. Published by John Wiley & Sons Ltd. All rights reserved. No part of this publication may be reproduced, stored or transmitted in any form or by any means without the prior permission in writing from the copyright holder. Authorization to copy items for internal and personal use is granted by the copyright holder for libraries and other users registered with their local Reproduction Rights Organisation (RRO), e.g. Copyright Clearance Center (CCC), 222 Rosewood Drive, Danvers, MA 01923, USA (www.copyright.com), provided the appropriate fee is paid directly to the RRO. This consent does not extend to other kinds of copying such as copying for general distribution for advertising

or promotional purposes, for republication, for creating new collective works or for resale. Special requests should be addressed to: permissions@wiley.com

INFORMATION FOR SUBSCRIBERS

Acta Physiologica is published in 12 issues per year. Subscription prices for 2021 are: Institutional: €1079 (Europe), \$1612 (The Americas), \$1884 (Rest of World). Prices are exclusive of tax. Australian GST, Canadian GST/HST and European VAT will be applied at the appropriate rates. For more information on current tax rates, please go to https://onlinelibrary.wiley.com/library-info/products/price-lists/payment. The price includes online access to the current and all online back files to January 1st 2017, where available. For other pricing options, including access information and terms and conditions, please visit https://onlinelibrary.wiley.com/library-info/products/price-lists. Terms of use can be found here: https://onlinelibrary.wiley.com/terms-and-conditions

DELIVERY TERMS AND LEGAL TITLE

Where the subscription price includes print issues and delivery is to the recipients address, delivery terms are **Delivered at Place (DAP)**; the recipient is responsible for paying any import duty or taxes. Title to all issues transfers Free of Board (FOB) our shipping point, freight prepaid. We will endeavour to fulfill claims for missing or damaged copies within six months of publication, within our reasonable discretion and subject to availability.

BACK ISSUES

Single issues from current and recent volumes are available at the current single issue price from cs-journals@wiley.com. Earlier issues may be obtained from Periodicals Service Company, 351 Fairview Avenue – Ste 300, Hudson, NY 12534, USA. Tel: +1 518 822-9300, Fax: +1 518 822-9305, Email: psc@periodicals.com

PUBLISHER

Acta Physiologica is published by John Wiley & Sons Ltd, 9600 Garsington Road, Oxford OX4 2DQ, UK, Tel: +44 1865 776868, Fax: +44 1865 714591

Journal Customer Services: For ordering information, claims and any enquiry concerning your journal subscription please go to https://hub.wiley.com/community/support/onlinelibrary or contact your nearest office:

Americas: Email: cs-journals@wiley.com; Tel: +1 781 388 8598 or 1 800 835 6770 (Toll free in the USA & Canada)

Europe, Middle East and Africa: Email: cs-journals@wiley.com; Tel: +44(0) 1865 778 315

Asia Pacific: Email: cs-journals@wiley.com; Tel: +65 6511 8000 Japan: For Japanese speaking support, Email: cs-japan@wiley.com

Visit our Online Customer Help at https://hub.wiley.com/community/support/onlinelibrary

This journal is available online at Wiley Online Library. Visit http://wileyonlinelibrary.com/journal/apha to search the articles and register for table of contents email alerts.

ONLINEOPEN

 $\label{lem:condition} Acta \textit{Physiologica} \ accepts \ articles \ for \ Open \ Access \ publication. \ Please \ visithttp://olabout.wiley.com/WileyCDA/Section/id-828081.html \ for \ further information \ about \ OnlineOpen.$

Access to this journal is available free online within institutions in the developing world through the AGORA initiative with the FAO and the HINARI initiative with the WHO. For information, visit www.aginternetwork.org,

www.who.int/hinari/en/

Wiley's Corporate Citizenship initiative seeks to address the environmental, social, economic and ethical challenges faced in our business and which are important to our diverse stakeholder groups. We have made a long-term commitment to standardize and improve our efforts around the world to reduce our carbon footprint. Follow our progress at www.wiley.com/go/citizenship.

ABSTRACTING AND INDEXING SERVICES

The Journal is indexed by Biobase, Biological Abstracts, BIOSIS Previews, CAB Abstracts, Calcium and Calcified Tissue Abstracts (Online Edition), Chemical Abstracts, Current Contents, Derwent Biotechnology Abstracts, EMBASE, Excerpta Medica Abstract Journals MEDLINE, Nutrition Abstracts and Reviews, Science Citation Index, SCOPUS.

ISSN (Online) 1748-1716

For submission instructions, subscription and all other information visit: www.actaphysiol.org

COVER

HIFs regulate neurovascular homeostasis. *Acta Physiol (Oxf)* 231:e13547