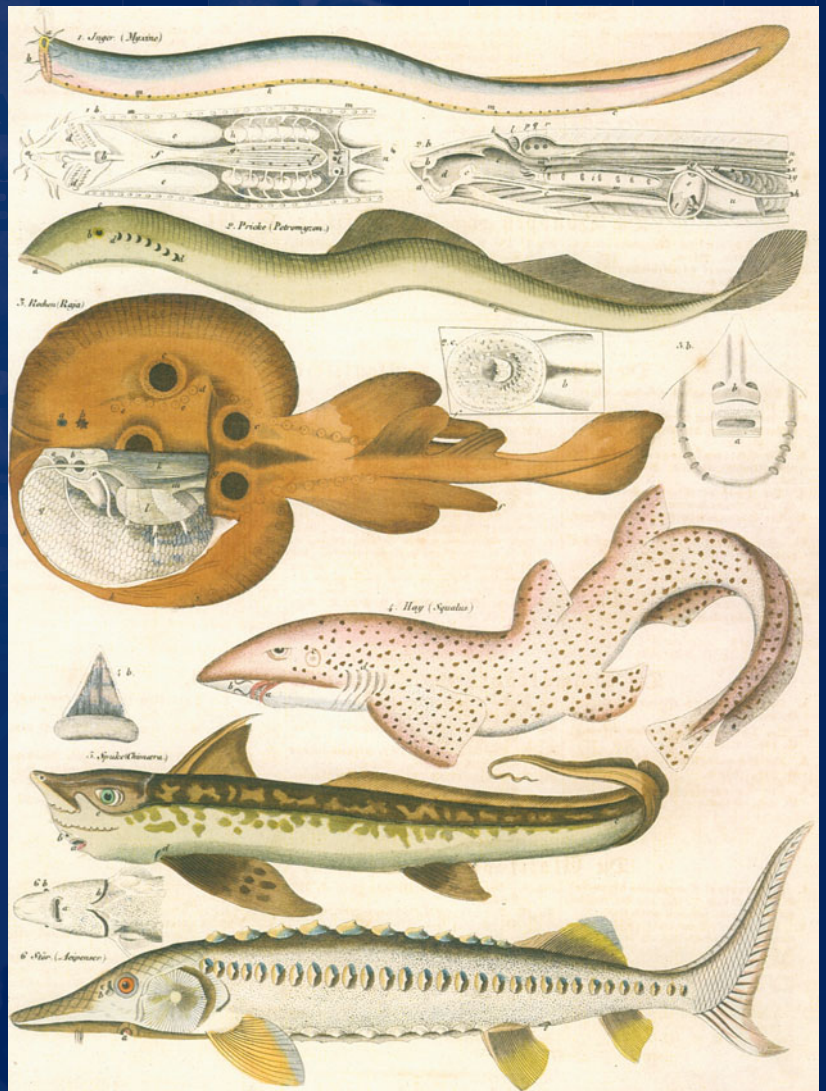


NEURON GLIA BIOLOGY



VOLUME 4 · PART 2 · 2008

CAMBRIDGE
UNIVERSITY PRESS

Neuron Glia Biology

Editor-in-Chief

R. Douglas Fields *

Chief, Nervous System Development & Plasticity Section

National Institutes of Health, NICHD

Bldg. 35, Room 2A211, MSC 3713

35 Lincoln Drive

Bethesda, MD 20892

USA

Email: ngb-office@cambridge.org

* Dr Fields is serving in a personal capacity

Associate Editors

Philip Haydon

University of Pennsylvania School of Medicine, USA

Kazuhiro Ikenaka

Okazaki National Research Institutes, Japan

Bernard Zalc

INSERM, Paris, France

Editorial Board

Regina Armstrong

Uniformed Services University, USA

Rita J. Balice-Gordon

University of Pennsylvania School of Medicine, USA

Dwight Bergles

Johns Hopkins University, USA

Marianne Bronner-Fraser

Caltech, USA

Peter J. Brophy

University of Edinburgh, UK

Moses V. Chao

Skirball Institute, USA

Marie-Françoise Chesselet

University of California, Los Angeles, USA

Vincenzo Crunelli

University of Wales, UK

George De Vries

Loyola University, USA

Monique Dubois-Dalq

Institut Pasteur, France

Ian D. Duncan

University of Wisconsin, USA

Mark H. Ellisman

UCSD School of Medicine, USA

Andreas Faissner

Ruhr Universitaet Bochum, Germany

Marie T. Filbin

CUNY, USA

Vittorio Gallo

George Washington University School of Medicine, USA

William T. Greenough

University of Illinois, USA

Alicia Hidalgo

University of Birmingham, UK

Lynn D. Hudson

NINDS, National Institutes of Health, USA

John Jellies

Western Michigan University, USA

Kristjan R. Jessen

University College London, UK

Harold K. Kimelberg

Albany Medical College, USA

Chien-Ping Ko

University of Southern California, USA

Jeffery D. Kocsis

Yale University School of Medicine, USA

Catherine Lubetzki

INSERM, France

Jeffrey D. Macklis

Harvard Medical School, USA

Pierre J. Magistretti

Universite Lausanne, Switzerland

Robert Malenka

Stanford University School of Medicine, USA

Ken McCarthy

University of North Carolina, USA

Rhona Mirsky

University College London, UK

Maiken Nedergaard

New York Medical College, USA

Eric A. Newman

University of Minnesota, USA

Elior Peles

Weizmann Institute of Science, Israel

Steve E. Pfeiffer†

University of Connecticut Medical School, USA

Gennadij Raivich

University College London, UK

Richard Robitaille

Universite de Montreal, Canada

Michael W. Salter

Hospital for Sick Children, Toronto, Canada

James L. Salzer

NYU Medical Center, USA

Steve Scherer

University of Pennsylvania, USA

Stephen J. Smith

Stanford University School of Medicine, USA

Ueli Suter

Swiss Federal Institute of Technology, Switzerland

Eva Sykova

Institute of Experimental Medicine, Prague, Czech Republic

Wesley J. Thompson

University of Texas, USA

Bruce D. Trapp

Cleveland Clinic Foundation, USA

Andrea Volterra

Universite de Lausanne, Switzerland

Stephen G. Waxman

Yale Medical School, USA

Subscriptions

Neuron Glia Biology (ISSN 1740-925X) is published four times a year in February, May, August and November. Four parts form a Volume. Volume 4 appears in 2008. The annual subscription price (excluding VAT), including delivery by air where appropriate, plus electronic access for subscribers of Volume 4 is £266 (US\$464 in the USA, Canada and Mexico) for institutions; £106 (US\$183 in the USA, Canada and Mexico) for individuals ordering direct from the publisher and certifying that the journal is for their personal use. Single parts are £73 (US\$128 in the USA, Canada and Mexico) plus postage. The electronic only price and print only price available to institutional subscribers is £250 and £250 (US\$420 and \$464 in the USA, Canada and Mexico), respectively.

Orders, which must be accompanied by payment, may be sent to a bookseller, subscription agent or to the publisher: Cambridge University Press, The Edinburgh Building, Shaftesbury Road, Cambridge CB2 8RU, UK; or in the USA, Canada and Mexico: Cambridge University Press, Journals Fulfillment Department, 100 Brook Hill Drive, West Nyack, New York 10994-2133, USA. EU subscribers (outside the UK) who are not registered for VAT should add VAT at their country's rate. VAT registered subscribers should provide their VAT registration number. Japanese prices for institutions are available from: Kinokuniya Company Ltd, PO Box 55, Chitose, Tokyo 156, Japan.

Periodicals postage paid at New York, NY, and at additional mailing offices. Postmaster: send address changes to in USA, Canada and Mexico to: Neuron Glia Biology, Cambridge University Press, 100 Brook Hill Drive, West Nyack, New York 10994-2133, USA. Claims for missing issues should be made immediately on receipt of the subsequent issue.

Copying

This journal is registered with the Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923, USA. Organisations in the USA who are also registered with C.C.C. may therefore photocopy material (beyond the limits permitted by sections 107 and 108 of U.S. Copyright law) subject to payment to C.C.C. of the per-copy fee of \$16. This consent does not extend to multiple copying for promotional purposes. Code 1740-925X/2007. ISI Tear Sheet Service, 3501 Market Street, Philadelphia, PA 19104, USA, is authorised to supply single copies of separate articles for private use only. Organisations authorised by the UK Copyright Licensing Agency may also photocopy material subject to the usual conditions. For all other use, permission should be sought from Cambridge or the American Branch of Cambridge University Press. No other part of this publication may be reproduced, stored or distributed by any means without permission in writing from Cambridge University Press, acting for the copyright holder.

Cover

NG2+ oligodendrocyte precursor cells (yellow) are shown in cell culture with neurons (anti-MAP2, blue) from rat hippocampus at 12 days in vitro, from studies of neural impulse activity regulating glial differentiation through ATP and LIF signaling. Differentiation of NG2 cells into oligodendrocytes and astrocytes in gray and white matter regions of spinal cord are investigated by Zhu et al. Photomicrograph, courtesy of Dr. Jonathan E. Cohen, NICHD.

Printed by Latimer Trend, Plymouth, UK