

# *Biology of the Neonate*

Vol. 59, 1991

## Foetal and Neonatal Research

Founded 1959 as 'Biologia Neonatorum' by A. Minkowski  
(formerly 'Etudes Néo-Natales')

### Editor-in-Chief

J.P. Relier, Paris

### Founder and Editor

A. Minkowski, Paris

### Associate Editors

F.C. Battaglia, Denver, Colo.

G. Duc, Zürich

J. Girard, Meudon-Bellevue

J.B. Warshaw, New Haven, Conn.

### Editorial Board

W.F. Balistreri, Cincinnati, Ohio

E. Bancalari, Miami, Fla.

R. Boyd, Manchester

F. Broughton-Pipkin, Nottingham

W.J. Cashore, Providence, R.I.

P. Czernichow, Paris

E.E. Delvin, Montréal

M.G. Forest, Lyon

C. Gaultier, Paris

J.P. Guignard, Lausanne

P. Hahn, Vancouver

M. Hamon, Paris

M. Hamosh, Washington, D.C.

S.J. Henning, Houston, Tex.

E. Herrera, Madrid

A. Jobe, Torrance, Calif.

N. Kobayashi, Tokyo

O. Koldovský, Tucson, Ariz.

H. Lagercrantz, Stockholm

J.C. Larroche, Paris

L. Reshef, Jerusalem

M.P. Richards, Beltsville, Md.

G. Rondini, Pavia

C. Roy, Montréal

F. Rubaltelli, Padova

A. Rudolph, San Francisco, Calif.

J. Senterre, Liège

M. Sperling, Pittsburgh, Pa.

N. Svenningsen, Lund

T. Tanimura, Osakasayama

G. Tchernia, Paris

M. Xanthou, Athens

S.J. Yaffe, Bethesda, Md.

**KARGER**

S. Karger · Medical and Scientific Publishers  
Basel · München · Paris · London · New York · New Delhi · Bangkok · Singapore · Tokyo · Sydney

---

#### Drug Dosage

The authors and the publisher have exerted every effort to ensure that drug selection and dosage set forth in this text are in accord with current recommendations and practice at the time of publication. However, in view of ongoing research, changes in government regulations, and the constant flow of information relating to drug therapy and drug reactions, the reader is urged to check the package insert for each drug for any change in indications and dosage and for added warnings and precautions. This is particularly important when the recommended agent is a new and/or infrequently employed drug.

All rights reserved.

No part of this publication may be translated into other languages, reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, recording, microcopying, or by any information storage and retrieval system, without permission in writing from the publisher or, in the case of photocopying, direct payment of a specified fee to the Copyright Clearance Center (see 'Information for Readers and Subscribers').

© Copyright 1991 by  
S. Karger AG, P.O. Box, CH-4009 Basel (Switzerland)  
Printed in Switzerland on acid-free paper by  
Thür AG Offsetdruck, Pratteln

# Contents Vol. 59, 1991

---

<b>No. 1</b>	<b>Original Papers</b>	
	Development of Urea-Synthesizing Capacity in Preterm Infants during the First Weeks of Life	
	Boehm, G.; Teichmann, B.; Jung, K. . . . .	1
	Perinatal Hematological Profile of Newborn Infants with Candida Antenatal Infections	
	Wolach, B.; Bogger-Goren, S.; Whyte, R. . . . .	5
	Modulation of Neonatal Rat Myeloid Kinetics Resulting in Peripheral Neutrophilia by Single Pulse Administration of Rh Granulocyte-Macrophage Colony-Stimulating Factor and Rh Granulocyte Colony-Stimulating Factor	
	Cairo, M.S.; Ven, C., van de; Mauss, D.; Kommareddy, S.; Norris, K.; Sheikh, K.; Modanlou, H. . . . .	13
	Developmental Changes in Plasma Apolipoproteins B and A-1 in Fetal Bovines	
	Marcos, E.; Mazur, A.; Cardot, P.; Coxam, V.; Rayssiguier, Y. . . . .	22
	Ontogeny of Iron Uptake across Brush Border Membrane of Guinea Pig Duodenum and its Autoradiographic Localisation	
	Debnam, E.S.; Srai, S.K.S.; Chowrimootoo, G.; Epstein, O. . . . .	30
	Detection of Growth-Stimulating Activity in the Proximal Small Intestine during Weaning in the Suckling Rat	
	Grey, V.L.; Seidman, E.G.; Pham, T.N.; Poullain, M.G.; Morin, C.L. . . . .	37
	Preferential Utilization of Lactate in Neonatal Dog Brain: In vivo and in vitro Proton NMR Study	
	Young, R.S.K.; Petroff, O.A.C.; Chen, B.; Aquila, W.J., Jr.; Gore, J.C. . . . .	46
	Rapid Effects of Hypoxia on the Cerebrospinal Fluid Levels of Adenosine and Related Metabolites in Newborn and One-Month-Old Piglets	
	Laudignon, N.; Farri, E.; Beharry, K.; Aranda, J.V. . . . .	54
	Acknowledgement . . . . .	60
<b>No. 2</b>	<b>Original Papers</b>	
	Influence of Gestational Age on Potential Difference Across Fetal Type II Alveolar Epithelium in Alveolar-Like Structures	
	Orser, B.; Fedorko, L.; Rafii, B.; Post, M.; O'Brodovich, H. . . . .	61
	Fetal Dexamethasone Exposure Affects Basal Ornithine Decarboxylase Activity in Developing Rat Brain Regions and Alters Acute Responses to Hypoxia and Maternal Separation	
	Carlos, R.Q.; Seidler, F.J.; Lappi, S.E.; Slotkin, T.A. . . . .	69
	Lipase and Pepsin Activities in the Stomach Mucosa of the Suckling Dog	
	Kirk, C.L.; Iverson, S.J.; Hamosh, M. . . . .	78
	Retinal, Choroidal and Total Ocular Blood Flow Response to Hypercarbia during Spontaneous Breathing and Mechanical Ventilation	
	Stiris, T.; Hall, C.; Bratlid, D. . . . .	86

	Postnatal Development of Mouse Alcohol Dehydrogenases: Agarose Isoelectric Focusing Analyses of the Liver, Kidney, Stomach and Ocular Isozymes	
	Rout, U.K.; Holmes, R.S. . . . . .	93
	Fructose-1,6-Diphosphate, when Given Five Minutes after Injury, Does Not Ameliorate Hypoxic Ischemic Injury to the Central Nervous System in the Newborn Pig	
	LeBlanc, M.H.; Farias, L.A.; Markov, A.K.; Evans, O.B.; Smith, B.; Smith, E.E.; Brown, E.G. . . . . .	98
	Effects of Chronic Hypoxia during Maturation on the Negative Chronotropic Effect of [H <sup>+</sup> ] on the Rabbit Sino-Atrial Node	
	Posner, P.; Baker, S.P.; Epstein, M.L.; MacIntosh, B.R.; Buss, D.D. . . . . .	109
	Relationships of Serum Estradiol, Cortisol and Albumin Concentrations with Pig Weight at 110 Days of Gestation and at Birth	
	Wise, T.; Stone, R.T.; Vernon, M.W. . . . . .	114
	Announcement . . . . .	120
<b>No. 3</b>	<b>Original Papers</b>	
	The High Lectin-Binding Capacity of Human Secretory IgA Protects Nonspecifically Mucosae against Environmental Antigens	
	Davin, J.-C.; Senterre, J.; Mathieu, P.R. . . . . .	121
	CO <sub>2</sub> -Sensitivity in Newborn and Young Infants Tested by the Rebreathing Method. Methodological Aspects	
	Katz-Salomon, M.; Hertzberg, T.; Lagercrantz, H. . . . . .	126
	Existence of a Digitalis-Like Compound in the Human Fetus	
	Guédéney, X.; Chanez, C.; Scherrmann, J.-M. . . . . .	133
	Thyroid Function in Fetus and Mother during the Second Half of Normal Pregnancy	
	Radunovic, N.; Dumez, Y.; Nastic, D.; Mandelbrot, L.; Dommergues, M. . . . . .	139
	Physiological Effects of Kangaroo Care in Very Small Preterm Infants	
	de Leeuw, R.; Colin, E.M.; Dunnebie, E.A.; Mirmiran, M. . . . . .	149
	Lack of Influence of Maternal and Fetal Transferrin Phenotypes and Concentrations on Normal Fetal Growth	
	Wong, C.T.; Saha, N. . . . . .	156
	Cerebral Function of the Guinea Pig Neonate after Chronic Intrauterine Exposure to Khat ( <i>Catha edulis</i> Forsk.)	
	Thordstein, M.; Jansson, T.; Kristiansson, B. . . . . .	161
	Strain Differences in Mouse Brain Weight Gain and Spatial-Location Scores during Postnatal Development	
	Epstein, H.T.; Kaufman, M.; Saperstein, A.; Frank, D.; Huang, S. . . . . .	171
<b>No. 4</b>	<b>Editorial</b>	
	Regulation of Tissue- and Development-Specific Gene Expression in the Liver	
	Bcnvenisty, N.; Reshef, L. . . . . .	181
	<b>Original Papers</b>	
	Clinical and Physiological Responses to Prolonged Nasogastric Administration of Doxapram for Apnea of Prematurity	
	Tay-Uyboco, J.; Kwiatkowski, K.; Cates, D.B.; Seifert, B.; Hasan, S.U.; Rigatto, H. . . . . .	190
	Molybdenum in the Premature Infant	
	Bougle, D.; Foucault, D.; Voirin, J.; Bureau, F.; Duhamel, J.F. . . . . .	201

Single Dose of Labetalol in Normotensive Pregnancy: Effects on Maternal Hemodynamics and Uterine and Fetal Flow Velocity Waveforms Pirhonen, J.P.; Erkkola, R.U.; Mäkinen, J.I.; Ekblad, U.U. . . . .	204
Plasma Biotin Levels in Neonates Livaniou, E.; Mantagos, S.; Kakabakos, S.; Pavlou, V.; Evangelatos, G.; Ithakissios, D.S.	209
Lymphocyte Subpopulations in Preterm Infants: High Percentage of Cells Expressing P55 Chain of Interleukin-2 Receptor Moretta, A.; Valtorta, A.; Chirico, G.; Bozzola, M.; De Amici, M.; Maccario, R. . . .	213
Maturation of Respiratory Responses to Graded Hypoxia in Rabbits Wangsnes, K.M.; Koos, B.J. . . . .	219
Behavioral Effects of an Intrauterine or Neonatal Diabetic Environment in the Rat Johansson, B.; Meyerson, B.; Eriksson, U.J. . . . .	226
Metallothionein in Rat Lung during Postnatal Development Hart, B.A.; Voss, G.W.; Garvey, J.S. . . . .	236
Hemodynamic Effects of Conventional and High Frequency Oscillatory Ventilation in Normal and Septic Piglets Osioivich, H.C.; Suguihara, C.; Goldberg, R.N.; Hehre, D.; Martinez, O.; Bancalari, E.	244
 <b>No. 5            Original Papers</b>	
Effect of Excess Dietary Fat during Third Trimester of Pregnancy on Maternal, Placental, and Fetal Metabolism in the Pig Hausman, D.B.; Scerley, R.W.; Martin, R.J. . . . .	257
Body Composition and Cold Resistance of the Neonatal Pig from European (Large White) and Chinese (Meishan) Breeds Le Dividich, J.; Mormède, P.; Catheline, M.; Caritez, J.C. . . . .	268
Diet Composition Modifies Embryotoxic Effects Induced by Experimental Diabetes in Rats Giavini, E.; Broccia, M.L.; Prati, M.; Roversi, G.D. . . . .	278
Perinatal Glutathione Levels in Liver and Brain of Rats from Large and Small Litters Glöckner, R.; Kretzschmar, M. . . . .	287
Glycogen and Enzymes of Glycogen Metabolism in Rat Embryos and Fetal Organs Gutierrez-Correa, J.; Hod, M.; Passoneau, J.V.; Freinkel, N. . . . .	294
Effects of Maternal Bilateral Adrenalectomy and Betamethasone Administration on Renal Rat Encephalic Development Arahuetes, R.M.; Carretero, V.; Diebold, Y.; Rua, C. . . . .	303
Cathepsin B and D Activities in Intestinal Mucosa during Postnatal Development in Pigs. Relation to Intestinal Uptake and Transmission of Macromolecules Ekström, G.M.; Weström, B.R. . . . .	314
Internal Jugular Venous Oxygen Saturation Does Not Reflect Sagittal Sinus Oxygen Saturation in Piglets Rudinsky, B.F.; Meadow, W.L. . . . .	322
 <b>No. 6            Original Papers</b>	
Cerebral Blood Flow Velocity Regulation in Preterm Infants van de Bor, M.; Walther, F.J. . . . .	329
Neonatal Gastrointestinal Growth and Function: Are They Regulated by Composition of Feeds Weaver, L.T.; Landymore-Lim, L.; Lucas, A. . . . .	336

Effect of Maternal Administration of Thyrotropin-Releasing Hormone or DN 1417 on Functional and Morphologic Fetal Rabbit Lung Maturation and Duration of Survival after Premature Delivery Devaskar, U.P.; deMello, D.E.; Ackerman, J. . . . .	346
Apolipoprotein A-I-Containing Lipoproteins in Human Umbilical Cord Blood. Relation to Proapolipoprotein A-I and Lecithin:Cholesterol Acyltransferase Barkia, A.; Thiemann, E.; Czekelius, P.; Wiegel, A.; Leroy, A.; Fruchart, J.-C.; Steinmetz, A. . . . .	352
Hyperoxemia Does Not Affect Renal Hemodynamics and Function in Newborn Rabbits Gouyon, J.-B.; Thonney, M.; Guignard, J.-P. . . . .	358
Size Selectivity of Lung Protein Accumulation in Preterm Ventilated Lambs Ikegami, M.; Jobe, A.; Tabor, B.; Yamada, T. . . . .	363
Effect of Blood Transfusion on Acid Base, Glucose and Electrolyte Status in Very Low Birth Weight Infants Tan, K.L.; Wong, L.Y. . . . .	373
<b>Abstracts</b>	
Abstracts of the 2nd European Workshop on Neonatology June 20–22, 1991, Klingenthal, France . . . . .	381
Author Index . . . . .	399
Subject Index . . . . .	401