

## Contents

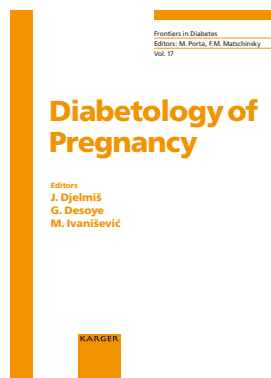
- Preface
- Epidemiology of Pregestational and Gestational Diabetes: **Pavlič-Renar, I.; Metelko, Ž.**
- Fuel-Mediated 'Functional Teratogenesis' and Primary Prevention: **Plagemann, A.**
- Endocrine Changes in Diabetic Pregnancy: **Kautzky-Willer, A.; Bancher-Todesca, D.**
- Metabolic Changes in Diabetic Pregnancy: **Herrera, E.**
- Leptin in the Diabetic Pregnancy: **Hauguel-de Mouzon, S.; Lepercq, J.; Catalano, P.**
- Maternal Diabetes and Embryonic Development: **De Hertogh, R.**
- Normal and Abnormal Fetal Growth: **Cetin, I.; Radaelli, T.**
- Effect of Nutrition on Fetal Development: A View on the Pancreatic  $\beta$ -Cells: **Blondeau, B.; Breant, B.**
- The Human Placenta in Diabetes: **Desoye, G.; Kaufmann, P.**
- Vasculogenesis and Angiogenesis in the Diabetic Placenta: **Leach, L.; Mayhew, T.M.**
- Morphological Findings in Infants and Placentas of Diabetic Mothers: **Kos, M.; Vogel, M.**
- Principles of Evidence-Based Medicine. The Lesson for Diabetic Pregnancy: **Pieber, T.R.**
- The Graz Approach to Diabetes in Pregnancy: **Weiss, P.A.M.; Desoye, G.**
- Clinical Management of Pregnancies Complicated with Type 1/Type 2 Diabetes mellitus: **Djelmiš, J.**
- Nutritional Management of Diabetes in Pregnancy: **Dornhorst, A.; Frost, G.**
- Diabetes-Related Antibodies and Pregnancy: **Corcoy, R.; Mauricio, D.; de Leiva, A.**
- Insulin and Oral Hypoglycemic Agents in Pregnancy: **Metelko, Ž.; Pavlič-Renar, I.**
- Continuous Glucose Monitoring for the Evaluation and Improved Treatment Adjustment in Gravid Women with Diabetic Pregnancy: **Hod, M.; Yogeve, Y.**
- Fetal Hypoxia and Its Monitoring in Pregestational Diabetic Pregnancies: **Teramo, K.A.; Hiilesmaa, V.K.**
- Ultrasonic Surveillance of the Diabetic Fetus: **Ivanišević, M.**
- Diabetic Pregnancy: Maternal Metabolic and Microvascular Complications in Type 1 Diabetes mellitus: **Pearson, D.W.M.**
- Pre-Eclampsia in Women with Type 1 Diabetes: **Mathiesen, E.R.; Damm, P.**
- Management of Delivery: **Miller, V.A.; Gillmer, M.D.G.**
- Offspring of Diabetic Pregnancy: **Persson, B.; Eriksson, U.J.; Hanson, U.**
- Long-Term Consequences of Gestational Diabetes mellitus: **Lauenborg, J.; Mathiesen, E.R.; Damm, P.**

Author Index  
Subject Index

[www.karger.com/fdiab](http://www.karger.com/fdiab)

## Scientific and clinical characteristics in gestational diabetes and in diabetes mellitus in pregnancy

# Diabetology of Pregnancy



Editors:  
**Josip Djelmiš**  
**Gernot Desoye**  
**Marina Ivanišević**

Trends identified when estimating global prevalence suggest the world is facing a pandemic of diabetes mellitus. Consequently a rapid increase in the incidence of gestational diabetes mellitus is expected.

This volume provides a comprehensive yet concise overview of the scientific and clinical characteristics of gestational diabetes as well as type 1 and type 2 diabetes mellitus during pregnancy. Throughout the book the authors adopt a multidisciplinary approach and cover aspects such as etiology, physiology, molecular biology and genetics, immunology, pathogenesis, diagnosis, treatment and management, pathology and evidence-based medicine. The role of the placenta as a fetal organ at the interface between mother and fetus is covered in depth.

Basic scientists and medical researchers will find several chapters reviewing the basis of our understanding of many aspects of the disease ranging from maternal endocrinology to fuel-mediated functional teratogenesis. Obstetricians, perinatologists and health care professionals dealing with diabetes and pregnancy and the offspring of diabetic mothers will gain profound insights into current concepts in the clinical management of diabetic pregnancy including preconception diagnosis and care, and the overall perspectives when complications arise during diabetes and pregnancy as well as potential complications during diabetic pregnancy and delivery.

*Fields of Interest: Endocrinology; Metabolism; Obstetrics; Diabetes, Gynecology, Fetal Medicine, Nutrition, Epidemiology*

**KARGER**

Frontiers in Diabetes, Vol. 17

**Diabetology of Pregnancy**

Editors: Djelmiš, J. (Zagreb); Desoye, G. (Graz); Ivanišević, M. (Zagreb)

X + 328 p., 50 fig., 16 in color, 22 tab., hardcover, 2005

CHF 164.- / EUR 117.- / USD 149.25

Prices subject to change

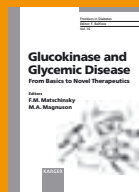
EUR price for Germany, USD price for USA only

ISBN 3-8055-7925-X

# Frontiers in Diabetes

Series Editors: **M. Porta** (Torino); **F.M. Matschinsky** (Philadelphia, Pa.)

Data at the frontiers of diabetes research are collected, systematically organized, and critically evaluated by volumes in this series. Contents are based on recent findings published in the medical literature and reflect the most advanced achievements in current clinical and experimental research on diabetes and allied disorders. By giving these data coherent organization and critical interpretation, the editor and authors of 'Frontiers in Diabetes' perform a major service for all scientists conducting experimental or clinical work in the field.



Vol. 16

## Glucokinase and Glycemic Disease: From Basics to Novel Therapeutics

Editors: **Franz M. Matschinsky, Mark A. Magnuson**

### Chapter 1:

#### Background

- Glucokinase as Glucose Sensor: Past, Present and Future
- The Hexokinase Gene Family
- Comparative Biochemistry of Glucokinase

### Chapter 2:

#### Human Biomedical Studies

- Maturity Onset Diabetes of the Young Type 2
- Permanent Neonatal Diabetes mellitus due to Glucokinase Deficiency
- Glucokinase-Linked Hypoglycemia: Clinical Aspects of Activating Glucokinase Mutations
- Glucokinase and the Regulation of Blood Sugar: A Mathematical Model Predicts the Threshold for
- Glucose Stimulated Insulin Release for GCK Gene Mutations that Cause Hyper- and Hypoglycaemia
- Glucokinase/Glutamate Dehydrogenase Interactions in the GDH Form of Congenital Hyperinsulinism

### Chapter 3:

#### Structure and Function

- Glucokinase: A Monomeric Enzyme with Positive Cooperativity
- Molecular Models of Human Glucokinase and the Implications for Glycemic Diseases
- Crystal Structure of Human Liver Glucokinase Bound to a Small Molecule Allosteric Activator. Insights into the Activating Mutations

### Chapter 4:

#### Regulation of Glucokinase

- Molecular Biology of GK Regulation
- Role of the Transcription Factor Sterol Regulatory Element Binding Protein -1c in Hepatic Glucokinase Gene Regulation
- Regulation of Hepatic Glucokinase Gene Expression
- Discovery and Role of Glucokinase Regulatory Protein
- GKRP/GK: Control of Metabolic Fluxes in Hepatocytes
- Regulation of Glucokinase as Islets Adapt to Pregnancy
- Regulation of Glucokinase by Vitamins and Hormones
- Regulation of  $\beta$ -Cell GK Gene Transcription by Insulin

- Interaction of GK with the Bifunctional Enzyme 6-Phosphofructo-2-Kinase/Fructose-2,6-Bisphosphatase (6PF2K/F26P2ase)
- Role of Sulfhydryl Groups in GK Catalysis for GK Function

### Chapter 5:

#### Tissue-Specific Functions

- Mouse Models of Altered Glucokinase Gene Expression
- Anatomy, Physiology and Regulation of Glucokinase as a Brain Glucosensor
- A Glucokinase/AP-1 Glucose Transduction Mechanism in the Ventromedial Hypothalamic Satiety Center
- The Hepatoportal Glucose Sensor: Mechanisms of Glucose Sensing and Signal Transduction
- Linear Relationship between Glucokinase Expression, Metabolic Redox State and Insulin Secretion
- Glucokinase in  $\beta$ -Cell Insulin-Secretory Granules

### Chapter 6:

#### Glucokinase as Drug Target

- Discovery and Actions of GK Activators
- Balancing Hepatic Glucose Disposal and Production: Key Regulatory Genes and Therapeutic Opportunities

Frontiers in Diabetes, Vol. 16

### Glucokinase and Glycemic Disease: From Basics to Novel Therapeutics

Editors: Matschinsky, M. (Philadelphia, Pa.); Magnuson, M.A. (Nashville, Tenn.)

X + 406 p., 105 fig., 8 in color, 24 tab., hard cover, 2004

CHF 258.- / EUR 184.50 / USD 234.75

Prices subject to change

EUR price for Germany,

USD price for USA only

ISBN 3-8055-7744-3

**Vol. 1-15 available.**

**Please enquire for details.**

**KARGER**

# Order Form

## Frontiers in Diabetes

Please send:

— copy/ies: Vol. 17

### Diabetology of Pregnancy

CHF 164.- / EUR 117.- / USD 149.25

ISBN 3-8055-7925-X

— copy/ies: Vol. 16

### Glucokinase and Glycemic Disease: From Basics to Novel Therapeutics

CHF 258.- / EUR 184.50 / USD 234.75

ISBN 3-8055-7744-3

— the book series **Frontiers in Diabetes**

on continuation beginning with vol. \_\_\_\_\_

Please send free information on:

— the book series **Frontiers in Diabetes**

All Karger series are available on continuation. Each new volume will be sent upon publication until order is countermanded.

Postage and handling free with prepayment

### Payment

Check enclosed  Please bill me

Please charge my credit card

American Express  Diners  Eurocard

MasterCard  Visa

Card No.:

\_\_\_\_\_

Exp. date:

\_\_\_\_\_

Name

\_\_\_\_\_

Address

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Date

\_\_\_\_\_

Signature

\_\_\_\_\_

Orders can be placed at agencies, bookstores, directly with the publisher, or with any Karger distributor.

### S. Karger AG, P.O. Box, 4009 Basel (Switzerland)

Fax +41 61 306 12 34, E-Mail orders@karger.ch

**USA:** S. Karger Publishers, Inc., 26 West Avon Road, P.O. Box 529,

Farmington, CT 06085 (USA), Toll free: 1-800-828-5479

**Germany:** S. Karger GmbH, 79115 Freiburg

**France:** Librairie Lugubühl, 75007 Paris

United Kingdom, Ireland: S. Karger AG, London SW6 1RU

**Baltic States:** Discripta OÜ, 10140 Tallinn (Estonia)

**Gulf Council Countries, Iran, Middle East, North Africa,**

**Turkey:** Trans Middle East Internat. Distribution Co. Ltd.,

KaSha, Amman 11953 (Jordan)

**ASEAN countries, Hong Kong, Taiwan, South Korea:**

APAC Publishers Services Pte. Ltd., Singapore 339 940

**India, Bangladesh, Sri Lanka:** Panther Publishers Private Ltd.,

Bangalore 560 034

**Japan:** Karger Japan, Inc., Tokyo 113-0034

**Australia:** DA Information Services, Mitcham, Vic. 3132 (Australia)

For details see [www.karger.com/worldwide](http://www.karger.com/worldwide)

To be ordered through: