

Monograph

- 7 **Introduction: Endocrine Disruptors—Exposure Assessment, Novel End Points, and Low-Dose and Mixture Effects—***Andreas Kortenkamp*

INDICATORS OF HUMAN AND WILDLIFE EXPOSURE TO ENDOCRINE DISRUPTORS

- 8 **Human Exposure to Endocrine-Disrupting Chemicals and Prenatal Risk Factors for Cryptorchidism and Hypospadias: A Nested Case–Control Study—***Mariana F. Fernandez, Begoña Olmos, Alicia Granada, María José López-Espinosa, José-Manuel Molina-Molina, Juan Manuel Fernandez, Milagros Cruz, Fátima Olea-Serrano, and Nicolás Olea*
- 15 **Semen Quality in Relation to Xenohormone and Dioxin-like Serum Activity Among Inuits and Three European Populations—***Gunnar Toft, Manbai Long, Tanja Krüger, Philip S. Hjelmborg, Jens Peter Bonde, Anna Rignell-Hydbom, Ewa Tyrkiel, Lars Hagmar, Aleksander Giwercman, Marcello Spanò, Davide Bizzaro, Henning S. Pedersen, Vladymir Lesovoy, Jan K. Ludwicki, and Eva C. Bonefeld-Jørgensen*
- 21 **Xenoandrogenic Activity in Serum Differs across European and Inuit Populations—***Tanja Krüger, Philip S. Hjelmborg, Bo A.G. Jönsson, Lars Hagmar, Aleksander Giwercman, Gian-Carlo Manicardi, Davide Bizzaro, Marcello Spanò, Anna Rignell-Hydbom, Henning S. Pedersen, Gunnar Toft, Jens Peter Bonde, and Eva C. Bonefeld-Jørgensen*
- 28 **Fish as Biomonitorers of Polybrominated Diphenyl Ethers and Hexabromocyclododecane in Czech Aquatic Ecosystems: Pollution of the Elbe River Basin—***Jana Pulkrabová, Jana Hajšlová, Jan Poustka, and Radek Kuzda*
- 35 **Brominated Flame Retardants in North-East Atlantic Marine Ecosystems—***Bjørn Munro Jensen, Eugen G. Sørmo, Kine Bak, Jenny Bytingsvik, Hege Gaustad, Anders Ruus, and Janneche Utne Skuare*

NOVEL MODELS, END POINTS, AND BIOMARKERS

- 42 **Estrogen Sensitivity of Target Genes and Expression of Nuclear Receptor Co-Regulators in Rat Prostate after Pre- and Postnatal Exposure to the Ultraviolet Filter 4-Methylbenzylidene Camphor—***Stefan Durrer, Colin Ehnes, Michaela Fuetsch, Kirsten Maerkel, Margret Schlumpf, and Walter Lichtensteiger*
- 51 **Effects of Endocrine Disruptors on Dehydroepiandrosterone Sulfotransferase and Enzymes Involved in PAPS Synthesis: Genomic and Nongenomic Pathways—***Robert Harris, Nahid Turan, Christopher Kirk, David Ramsden, and Rosemary Waring*
- 55 **In Utero Exposure to Di(*n*-butyl) Phthalate and Testicular Dysgenesis: Comparison of Fetal and Adult End Points and Their Dose Sensitivity—***I. Kim Mahood, Hayley M. Scott, Richard Brown, Nina Hallmark, Marion Walker, and Richard M. Sharpe*

- 62 **Effects of Chronic Genistein Treatment in Mammary Gland, Uterus, and Vagina—**
Guillermo Rimoldi, Julie Christoffel, Dana Seidlova-Wuttke, Hubertus Jarry, and Wolfgang Wuttke
- 69 **Endocrine-Disrupting Potential of Bisphenol A, Bisphenol A Dimethacrylate, 4-*n*-Nonylphenol, and 4-*n*-Octylphenol *in Vitro*: New Data and a Brief Review—**
Eva C. Bonefeld-Jørgensen, Manhai Long, Marlene V. Hofmeister, and Anne Marie Vinggaard
- 77 **Endocrine Disruptors and the Thyroid Gland—A Combined *in Vitro* and *in Vivo* Analysis of Potential New Biomarkers—**
Cornelia Schmutzler, Inka Gotthardt, Peter J. Hofmann, Branislav Radovic, Gabor Kovacs, Luise Stemmler, Inga Nobis, Anja Bacinski, Birgit Mentrup, Petra Ambrügger, Annette Grüters, Ludwik K. Malendowicz, Julie Christoffel, Hubertus Jarry, Dana Seidlová-Wuttke, Wolfgang Wuttke, and Josef Köhrle

LOW-DOSE EFFECTS OF ENDOCRINE DISRUPTORS

- 84 **Statistical Power Considerations Show the Endocrine Disruptor Low-Dose Issue in a New Light—**
Martin Scholze and Andreas Kortenkamp
- 91 **Activity of Xenoestrogens at Nanomolar Concentrations in the E-Screen Assay—**
Elisabete Silva, Martin Scholze, and Andreas Kortenkamp

MIXTURE EFFECTS OF ENDOCRINE DISRUPTORS AND THEIR ASSESSMENT

- 98 **Ten Years of Mixing Cocktails: A Review of Combination Effects of Endocrine-Disrupting Chemicals—**
Andreas Kortenkamp
- 106 **Low-Level Exposure to Multiple Chemicals: Reason for Human Health Concerns?—**
Andreas Kortenkamp, Michael Faust, Martin Scholze, and Thomas Backhaus
- 115 **Mixtures of Estrogenic Chemicals Enhance Vitellogenic Response in Sea Bass—**
Ana D. Correia, Sandro Freitas, Martin Scholze, José F. Gonçalves, Petra Booij, Marja H. Lamoree, Evaristo Mañanós, and Maria A. Reis-Henriques
- 122 **Combined Exposure to Anti-Androgens Exacerbates Disruption of Sexual Differentiation in the Rat—**
Ulla Hass, Martin Scholze, Sofie Christiansen, Majken Dalgaard, Anne Marie Vinggaard, Marta Axelstad, Sine Broeng Metzendorff, and Andreas Kortenkamp
- 129 **Enhanced Micronucleus Formation and Modulation of Bcl-2:Bax in MCF-7 Cells after Exposure to Binary Mixtures—**
Rebecca Hewitt, Albert Forero, Paz J. Luncsford, and Francis L. Martin