# **Contents**

#### VII Preface

Reedie, C. (Glasgow)

#### 1 Brief History of Anti-Doping

Ljungqvist, A. (Stockholm)

#### **Regulatory and Legal Issues**

#### 11 The Development of the World Anti-Doping Code

Young, R. (Colorado Springs, CO)

#### 22 Is the Fight against Doping in Sport a Legal Minefield like Any Other?

Haas, U. (Zurich)

## 34 How Will the Legal and Sport Environment Influence a Future Code?

Niggli, O. (Montreal, QC)

The Anti-Doping Science

#### 39 Structure and Development of the List of Prohibited Substances and Methods

Kinahan, A. (Montreal, QC/Ennis); Budgett, R. (Montreal, QC/London); Mazzoni, I. (Montreal, QC/Dublin)

#### 55 Therapeutic Use Exemptions

Gerrard, D. (Montreal, QC); Pipe, A. (Ottawa, ON)

## 68 Challenges in Modern Anti-Doping Analytical Science

Ayotte, C. (Laval, QC); Miller, J. (Glasgow); Thevis, M. (Cologne)

## 77 Achievements and Challenges in Anti-Doping Research

Bowers, L.D. (Colorado Springs, CO); Bigard, X. (Paris)

### 91 Gene and Cell Doping: The New Frontier - Beyond Myth or Reality

Neuberger, E.W.I.; Simon, P. (Mainz)



#### **Next Generation Anti-Doping Approaches**

# 107 The Athlete Biological Passport: How to Personalize Anti-Doping Testing across an Athlete's Career?

Robinson, N. (Epalinges); Sottas, P.-E. (Lausanne); Schumacher, Y.O. (Doha)

#### 119 Next Generation "Omics" Approaches in the "Fight" against Blood Doping

Wang, G. (Eastbourne/Rome); Karanikolou, A.; Verdouka I. (Eastbourne); Friedmann, T. (San Diego, CA); Pitsiladis, Y. (Eastbourne/Rome)

## 129 Integration of the Forensic Dimension into Anti-Doping Strategies

Marclay, F.; Saugy, M. (Epalinges/Lausanne)

#### 139 How to Develop Intelligence Gathering in Efficient and Practical Anti-Doping Activities

Holz, M. (Lausanne); Robertson, J. (Montreal, QC)

Social and Ethical Dimensions of Anti-Doping

## 153 Education in Anti-Doping: The Art of Self-Imposed Constraints

Loland, S. (Oslo)

# 160 Can We Better Integrate the Role of Anti-Doping in Sports and Society? A Psychological Approach to Contemporary Value-Based Prevention

Petróczi, A. (Kingston upon Thames/Sheffield); Norman, P. (Sheffield); Brueckner, S. (Kingston upon Thames/Saarbrücken)

#### 177 Sport, Society, and Anti-Doping Policy: An Ethical Overview

Bloodworth, A.J.; McNamee, M. (Swansea)

## 186 A Moral Foundation for Anti-Doping: How Far Have We Progressed? Where Are the Limits?

Murray, T.H. (Brewster, MA)

#### 194 Conclusion and Perspectives

Howman, D. (Wellington)

#### 202 Author Index

203 Subject Index