

## PERSONAL INFORMATION

Maria Kristina Parr

## WORK EXPERIENCE

October 1995–July 1996

**tutor**

University of Bonn (Germany)  
teaching assistant as student worker

March 1997–April 1998

**Intern**

Chemisches Landes- und Staatliches Veterinäruntersuchungsamt Münster (Germany)  
practical education for licensure of food chemist

April 1998–April 2001

**scientific assistant**

German Sport University Cologne (Germany)  
anti-doping analysis, research

May 2001–December 2005

**Scientific Employee**

German Sport University Cologne (Germany)  
Integration of the department for dietary supplement analysis into ISO17025 accreditation, method development, research projects

January 2006–March 2012

**Certifying Chemist**

German Sport University Cologne (Germany)  
Head of department for analysis of dietary supplements, quality control of DS, synthesis of reference materials, research on metabolism and method development

October 2010–March 2012

**Lecturer**

University of Bonn (Germany)  
Teaching in course of "Pharmacy (state examination)"

October 2006–March 2012

**Lecturer/Reader**

University of Applied Sciences Bonn-Rhein-Sieg (Germany)  
Teaching in courses of „MSc Biomedical Sciences“ and „BSc Forensic Sciences“

January 2012–December 2015

**Reader**

German Sport University Cologne (Germany)  
Teaching in course of „MSc Sportphysiotherapie“

April 2012–Present

**Full Professor**

Freie Universitaet Berlin (Germany)  
Research and teaching

## EDUCATION AND TRAINING

June 2010–July 2012

**Habilitation Pharmaceutical Chemistry**

University of Bonn (Germany)

Independent Research and Teaching

April 1998–June 2001

### Dr. rer nat. (Pharmaceutical Chemistry)

Martin-Luther-Universität Halle-Wittenberg (Germany)

Research in Pharmaceutical Chemistry, Analytical Method Development, Pharmacokinetics, Clinical Pharmacy, and Pharmacology

March 1997–April 1998

### Licensed Food Chemist (Approbation Lebensmittelchemikerin)

Chemisches Landes- und Staatliches Veterinäruntersuchungsamt Münster (Germany)

Analysis and evaluation (incl legislation) of food, cosmetics, water, etc  
also including contamination and residue analysis

October 1991–November 1996

### University studies &quot;Food Science&quot;

University of Bonn (Germany)

Chemistry, analysis and technology of food, cosmetics, water, etc

## ADDITIONAL INFORMATION

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### Expertise

Pharmaceutical Chemistry especially Pharmaceutical Analysis, Quality Control and Quality Management, Ph.Eur based Analysis, Chromatography, Hypenation Techniques, Mass Spectrometry, Drug Metabolism, Anti-Doping Research, Biopharmaceuticals, Biosimilars

### Publications

scientific publications

Review Articles (peer-reviewed) and MS-Spectra Database

[R1] Joseph JF, Parr MK. Application of SFC for bioanalysis. In: Chowdhury S, Ma S. Identification and Quantification of Drugs, Metabolites, Drug Metabolizing Enzymes, and Transporters - Concepts, Methods, and Translational Sciences. Elsevier, in press

[R2] Harps LC, Joseph JF, Parr MK. SFC for chiral separations in bioanalysis. J Pharmaceut Biomed 162 (2019) 47–59

[R3] Parr MK, Joseph JF. NDMA impurity in valsartan and other pharmaceutical products: Analytical methods for the determination of N-nitrosamines. J Pharmaceut Biomed 164 (2018) 536-549

[R4] Parr MK, Müller-Schöll A. Pharmacology of doping agents – mechanisms promoting muscle hypertrophy. AIMS Molecular Science 5 (2018) 145-155

[R5] Parr MK, Schmidt AH. Life cycle management of analytical methods. J Pharmaceut Biomed 147 (2018) 506-517

[R6] Parr MK. Nahrungsergänzungsmittel und Sport. Ernährung Aktuell 3 (2017) 1-6

[R7] Parr MK, Schmidtdorff S, Kollmeier AS. Nutritional supplements in sports - sense, nonsense or hazard?. Bundesgesundheitsblatt, Gesundheitsforschung, Gesundheitsschutz 60 (2017) 314-322

[R8] Parr MK, Montacir O, Montacir H. Physicochemical characterization of biopharmaceuticals. J Pharmaceut Biomed 130 (2016) 366-389

[R9] Liebetau F, Parr MK. Determination of enantiomeric bioactives using new analytical SFC instruments. Chimica Oggi - Chemistry Today 33 (2015) 22-25

[R10] Parr MK, Joseph JF. Erlaubte Therapie oder Doping – Dos and Don'ts bei der Behandlung von Spitzensportlern. Journal für Anästhesie und Intensivbehandlung 22 (2015) 159-165

[R11] Joseph JF, Parr MK. Synthetic androgens as designer supplements. Current Neuropharmacology 13 (2015) 1-12

[R12] Parr MK, Schmidt AH. What is the potential of measuring the enantiomeric ratio of drugs using SFC-MS? Bioanalysis 6 (2014) 3267-3270

[R13] Parr MK. Leistungssteigerung durch Arzneimittelmisbrauch – Doping im Sport. Journal für Anästhesie und Intensivbehandlung 21 (2014) 139-144

[R14] Parr MK, Opfermann G, Schänzer W. Mass spectra of physiologically active substances: Including drugs, steroid hormones, and endocrine disruptors 2011, CD Rom, Wiley-VCH Verlag

GmbH & Co. KgaA (2011) ISBN 978-3527330805

[R15] Parr MK, Flenker U, Schänzer W. The assay of endogenous and exogenous anabolic androgenic steroids. In: Ghigo E, Lanfranco F, Strasburger CJ (eds). *Hormone Use and Abuse by Athletes*, Springer Science & Business Media LLC New York (2011) 121-130, ISBN 978-1-4419-7013-8

[R16] Parr MK, Opfermann G, Schänzer W, Makin HLJ. *Mass spectra of androgens, estrogens and other steroids 2010*, CD Rom, Wiley-VCH Verlag GmbH & Co. KgaA (2010) ISBN 978-3-527-32727-0

[R17] Parr MK, Schänzer W. Detection of the misuse of steroids in doping control. *J Steroid Biochem Mol Biol* 121 (2010) 528-537

[R18] Parr MK, Flenker U, Schänzer W. Sports related issues and biochemistry of natural and synthetic anabolic substances. *Endocrinology and Metabolism Clinics of North America* 39 (2010) 45-57

[R19] Parr MK, Opfermann G, Schänzer W. Analytical methods for the detection of clenbuterol. *Bioanalysis* 1 (2009) 437-450

[R20] Geyer H, Parr MK, Köhler K, Mareck U, Schänzer W, Thevis M. Nutritional supplements cross-contaminated and faked with doping substances. *Journal of Mass Spectrometry* 43 (2008) 892-902  
Original Research (peer-reviewed)

[O1] Xhaferaj M, Naegele E, Parr MK. Ion exchange in supercritical fluid chromatography tandem mass spectrometry (SFC-MS/MS): Application for polar and ionic drugs and metabolites in forensic and anti-doping analysis. *J Chrom A* (2019) in press (doi: 10.1016/j.chroma.2019.460726)

[O2] Parr MK, Ambrosio G, Wuest B, Mazzarino M, De La Torre X, Sibilio F, Joseph JF, Diel P, Botrè F. Targeting the Administration of Ecdysterone in Doping Control Samples. *Forensic Tox* (2019) in press (doi: 10.1007/s11419-019-00504-y)

[O3] Ambrosio G, Wirth D, Joseph JF, Mazzarino M, de la Torre X, Botre F, Parr MK. How reliable is dietary supplement labelling? Experiences from the analysis of ecdysterone supplements. *J Pharmaceut Biomed* (2019) in press (doi: 10.1016/j.jpba.2019.112877)

[O4] Stoll A, Loke S, Joseph JF, Machalz D, De La Torre X, Botre F, Wolber G, Bureik M, Parr MK. Fine-mapping of the substrate specificity of human steroid 21-hydroxylase (CYP21A2). *The Journal of steroid biochemistry and molecular biology* (2019) in press (doi: 10.1016/j.jsbmb.2019.105446)

[O5] Isenmann E, Ambrosio G, Joseph JF, Mazzarino M, De La Torre X, Zimmer P, Kazlauskas R, Goebel C, Botrè F, Diel P, Parr MK. Ecdysteroids as non-conventional anabolic agent: performance enhancement by ecdysterone supplementation in humans. *Arch Toxicology* 93 (2019) 1807-1816

[O6] Dyck YFK, Rehm D, Joseph JF, Winkler K, Sandig V, Jabs W, Parr MK. Forced Degradation Testing as Complementary Tool for Biosimilarity Assessment. *Bioengineering* 6 (2019) 1-13

[O7] de la Torre X, Martinez Brito D, Colamonici C, Parr MK, Botrè F. Metabolism of formestane in humans: Identification of urinary biomarkers for antidoping analysis. *Steroids* 146 (2019) 34-42

[O8] Linbing F, Joseph JF, Durairaj P, Parr MK, Bureik M. Conversion of chenodeoxycholic acid to cholic acid by human CYP8B1. *Biol Chem* 400 (2018) 625-628

[O9] Methling M, Krumbiegel F, Hartwig, S, Parr MK, Tsokos M. Toxicological findings in suicides - frequency of antidepressant and antipsychotic substances. *Forensic Sci Med Pathol* 15 (2019) 23-30

[O10] Assaf J, Kollmeier A, Müller C, Parr MK. Reconsidering mass spectrometric fragmentation in EI-MS - new insights from recent instrumentation and isotopic labelling exemplified by ketoprofen and related compounds. *Rapid Commun Mass Spectrom* 33 (2019) 215-228

[O11] Schmidtsdorff S, Schmidt AH, Parr MK. Structure assisted impurity profiling for rapid method development in liquid chromatography. *J Chromatogr A* 1577 (2018) 38-46

[O12] Mazzarino M, Khevenhüller-Metsch FL, Fiacco I, Parr MK, de la Torre X, Botrè F. Drug-drug interaction and doping: Effect of non-prohibited drugs on the urinary excretion profile of methandienone. *Drug Test Anal* 10 (2018) 1554-1565

[O13] Montacir O, Montacir H, Springer A, Hinderlich S, Mahboudi F, Saadati A, Parr MK. Bioengineering of rFVIIa biopharmaceutical and structure characterization for biosimilarity assessment. *Bioengineering* 5 (2018) 7

[O14] Ambrosio G, de la Torre X, Mazzarino M, Parr MK, Botrè FM. Effect of non-prohibited drugs on the phase II metabolic profile of morphine. An in vitro investigation for doping control purposes. *Drug Test Anal* 10 (2018) 984-994

[O15] Parr MK, Wuest B, Teubel J, Joseph JF. Splittless hyphenation of SFC with MS by APCI, APPI, and ESI exemplified by steroids as model compounds. *J Chrom B* 1091 (2018) 67-78

- [O16] Teubel J, Wüst B, Schipke C, Peters O, Parr MK. Methods in endogenous steroid profiling – a comparison of gas chromatography mass spectrometry (GC-MS) with supercritical fluid chromatography tandem mass spectrometry (SFC-MS/MS). *J Chrom A* 1554 (2018) 101-116
- [O17] Keiler AM, Zierau O, Wolf S, Diel P, Schänzer W, Vollmer G, Machalz D, Wolber G Parr MK. Androgen- and estrogen-receptor mediated activities of 4-hydroxytestosterone, 4-hydroxyandrostenedione and their human metabolites in yeast based assays. *Tox Letters* 292 (2018) 39–45
- [O18] Montacir O, Montacir H, Springer A, Hinderlich S, Mahboudi F, Saadati A, Parr MK. Physicochemical characterization, glycosylation pattern and biosimilarity assessment of the fusion protein Etanercept. *The Protein Journal* 37 (2018) 164-179
- [O19] Liu J, Chen L, Joseph JF, Naß A, Stoll A, de la Torre X, Botrè F, Wolber G, Parr MK, Bureik M. Combined chemical and biotechnological production of 20 $\beta$ OH-NorDHCMT, a long-term metabolite of Oral-Turinabol (DHCMT). *J Inorg Biochem* 183 (2018) 165-171
- [O20] Assaf J, Gomes DZ, Wuest B, Parr MK. Photostability testing using online reactor HPLC hyphenation and mass spectrometric compound identification illustrated by ketoprofen as model compound. *J Pharmaceut Biomed* 145 (2017) 414-422
- [O21] González-Rodríguez S, Quadir MA, Gupta S, Walker KA, Zhang X, Spahn V, Labuz D, Rodríguez-Gaztelumendi A, Schmelz M, Joseph J, Parr MK, Machelska H, Haag R, Stein C. Polyglycerol-opioid conjugate produces analgesia devoid of side effects. *eLife eLife* 6 (2017) e27081
- [O22] Montacir O, Montacir H, Eravci M, Springer A, Hinderlich S, Saadati A, Parr MK. Comparability study of rituximab originator and follow-on biopharmaceutical. *J Pharmaceut Biomed* 140 (2017) 239-251
- [O23] Parr MK, Blokland MH, Liebetrau F, Schmidt AH, Stanic M, Kwiatkowska D, Waraksa E, Sterk SS. Distinction of clenbuterol intake from drug or contaminated food of animal origin in a controlled administration trial – the potential of enantiomeric separation for doping control analysis. *Food Add Contam A* 34 (2017) 525-535
- [O24] Koehler K, Geyer H, Schultze G, Parr MK, Guddat S, Braun H, Mareck U, Thevis M, Schänzer W. Nutritional supplements: Still a risk of inadvertent doping? An extended international follow-up. *Recent advances in doping analysis (20)*. Sportverlag Strauß, Köln (2017) 63-68
- [O25] Parr MK, Wuest B, Naegele E, Joseph JF, Wenzel M, Schmidt AH, Stanic M, de la Torre X, Botrè F. SFC-MS/MS as orthogonal technique for improved screening for polar analytes in anti-doping control. *Anal Bioanal Chem* 408 (2016) 6789-6797
- [O26] Krumbiegel F, Hastedt M, Westendorf L, Niebel A, Methling M, Parr MK, Tsokos M. The use of nails as an alternative matrix for the long-term detection of previous drug intake: validation of sensitive UHPLC-MS/MS methods for the quantification of 77 substances and comparison with analytical results for drugs in nail and hair samples. *Forensic Sci Med Pathol* 12 (2016) 416-434
- [O27] Hengevoss J, Piechotta M, Müller D, Hanft F, Parr MK, Schänzer W, Diel P. Combined effects of androgen anabolic steroids and physical activity on the hypothalamic pituitary-gonadal axis. *J Steroid Biochem Mol Biol* 150 (2015) 86-96
- [O28] Empl MT, Kammeyer P, Ulrich R, Joseph JF, Parr MK, Ina Willenberg I, Schebb NH, Baumgärtner W, Röhrdanz E, Steffen C, Steinberg P. The influence of chronic L-carnitine supplementation on the formation of preneoplastic and atherosclerotic lesions in the colon and aorta of male F344 rats. *Arch Toxicol* 89 (2015) 2079-87
- [O29] Parr MK, Botrè F, Naß A, Hengevoss J, Diel P, Wolber G. Ecdysteroids: A novel class of anabolic agents? *Biol Sport* 32 (2015) 169-173
- [O30] de la Torre X, Colamonici C, Curcio D, Jardines D, Molaioni F, Parr MK, Botrè F. Detection of formestane abuse by mass spectrometric techniques. *Drug Test Anal* 6 (2014) 1133-40
- [O31] Parr MK, Zhao P, Haupt O, Nguen ST, Hengevoss J, Fritzscheier KH, Piechotta M, Schlörer N, Muhn P, Zheng WY, Xie MY, Diel P. Estrogen receptor beta is involved in skeletal muscle hypertrophy induced by the phytoecdysteroid ecdysterone. *Mol Nutr Food Res* 58 (2014) 1861-1872
- [O32] Parr MK, Schänzer W, Schlörer NE, Voronina E, Hengevoss J, Diel P. Alternative detection strategies for anabolic steroid abuse by NMR metabolomics and endocrine feedback loop analyses. In: Schänzer W, Geyer H, Gotzmann A, Mareck U (eds). *Recent advances in doping analysis (20)*. Sportverlag Strauß, Köln (2012) 46-51
- [O33] Parr MK, Daniels J, Schlörer N, Schänzer W. Structure proof of tibolone 3-hydroxy metabolite. In: Schänzer W, Geyer H, Gotzmann A, Mareck U (eds). *Recent advances in doping analysis (20)*. Sportverlag Strauß, Köln (2012) 28-33
- [O34] Müller D, Opfermann G, Rojas Vega S, Schlörer N, Pokrywka A, Kwiatowska D, Diel P,

- Schänzer W, Parr MK. Analysis of steroid profile alteration, metabolite excretion and biological activity of 5 $\alpha$ -androst-1-ene-3,17-dione. In: Schänzer W, Geyer H, Gotzmann A, Mareck U (eds). Recent advances in doping analysis (20). Sportverlag Strauß, Köln (2012) 197-200
- [O35] Bauer A, Rataj F, Zierau O, Anielski P, Große J, Parr MK, Vollmer G, Thieme D. Characterization of identity, metabolism and androgenic activity of 17-hydroxyandrosta-3,5-diene by GC-MS and a yeast transactivation system. Arch Toxicol 86 (2012) 1873-1884
- [O36] Parr MK, Zöllner A, Fußhöller G, Opfermann G, Schlörer N, Zorio M, Bureik M, Schänzer W. Unexpected contribution of cytochrome P450 enzymes CYP11B2 and CYP21, as well as CYP3A4 in xenobiotic androgen elimination - insights from metandienone metabolism. Tox Letters 213 (2012) 381-391
- [O37] Bredehöft M, Baginski R, Parr MK, Thevis M, Schänzer W. Investigations of the microbial transformation of cortisol to prednisolone in urine samples. J Steroid Biochem Mol Biol 129 (2012) 54-60
- [O38] Parr MK, Blatt C, Zierau O, Hess C, Gütschow M, Fußhöller G, Opfermann G, Schänzer W, Diel P. Endocrine characterization of the designer steroid methyl-1-testosterone - investigations on tissue specific anabolic-androgenic potency, side effects and metabolism. Endocrinology 152 (2011) 4718-28
- [O39] Parr MK, Pokrywka A, Kwiatkowska D, Schänzer W. Ingestion of designer supplements produced positive doping cases unexpected by the athletes. Biol Sport 28 (2011) 153-157
- [O40] Wolf S, Diel P, Parr MK, Rataj F, Schänzer W, Vollmer G, Zierau O. Detection of methyltestosterone abuse using a yeast transactivation system. Arch Toxicol 85 (2011) 285-292
- [O41] Parr MK, Opfermann G, Geyer H, Westphal F, Sönnichsen FD, Zapp J, Kwiatkowska D, Schänzer W. Seized designer supplement named "1-Androsterone": Identification as 3 $\beta$ -hydroxy-5 $\alpha$ -androst-1-en-17-one and its urinary elimination. Steroids 76 (2011) 540-547
- [O42] Parr MK, Fußhöller G, Schlörer N, Opfermann G, Geyer H, Rodchenkov G, Schänzer W. Detection of delta-6-methyltestosterone in a "dietary supplement" and GC-MS/MS investigations on its urinary metabolism. Tox Letters 201 (2011) 101-104
- [O43] Hülsemann F, Flenker U, Parr MK, Geyer H, Schänzer W. Authenticity control and identification of origin of synthetic creatine-monohydrate by isotope ratio mass spectrometry. Food Chem 125 (2011) 767-772
- [O44] Parr MK, Opfermann G, Schlörer N, Geyer H, Rataj F, Zierau O, Diel P, Schänzer W. Sense or nonsense of prohormone designing: Reduced metandienone as supplement. In: Schänzer W, Geyer H, Gotzmann A, Mareck U (eds). Recent advances in doping analysis (19). Sportverlag Strauß, Köln (2011) 15-23
- [O45] Orlovius AK, Guddat S, Parr MK, Koch A, Gütschow M, Thevis M, Schänzer W. Identification and monitoring of octopamine sulfoconjugate in urine by LC/(ESI)-MS/MS. In: Schänzer W, Geyer H, Gotzmann A, Mareck U (eds). Recent advances in doping analysis (19). Sportverlag Strauß, Köln (2011) 34-42
- [O46] Wolf S, Rataj F, Zierau O, Ostermann K, Diel P, Parr MK, Vollmer G, Rödel G. A novel combined approach to detect androgenic activities with yeast based assays in Schizosaccharomyces pombe and Saccharomyces cerevisiae. Tox Letters 199 (2010) 410-415
- [O47] Zöllner A, Parr MK, Dragan CA, Dräs S, Schlörer N, Peters FT, Maurer HH, Schänzer W, Bureik M. CYP21-catalyzed production of the long term urinary metandienone metabolite 17 $\beta$ -hydroxymethyl-17 $\alpha$ -methyl-18-norandrosta-1,4,13-trien-3-one: A contribution to the fight against doping. Biol Chem 391 (2010) 119-127
- [O48] Parr MK, Diel P, Zierau O, Schänzer W. Investigations regarding the WADA classification of the supplement ingredient androsta-1,4,6-triene-3,17-dione. In: Schänzer W, Geyer H, Gotzmann A, Mareck U (eds). Recent advances in doping analysis (18). Sportverlag Strauß, Köln (2010) 34-41
- [O49] Parr MK, Fußhöller G, Gütschow M, Hess C, Schänzer W. GC-MS(/MS) investigations on long-term metabolites of 17-methyl steroids. In: Schänzer W, Geyer H, Gotzmann A, Mareck U (eds). Recent advances in doping analysis (18). Sportverlag Strauß, Köln (2010) 64-73
- [O50] Parr MK, Westphal F, Sönnichsen FD, Geyer H, Schänzer W. 1-DHEA identification in seized dietary supplement. In: Schänzer W, Geyer H, Gotzmann A, Mareck U (eds). Recent advances in doping analysis (18). Sportverlag Strauß, Köln (2010) 241-244
- [O51] Orlovius AK, Parr MK, Guddat S, Gütschow M, Thevis M, Schänzer W. Detection of urinary phase-I and phase-II metabolites of ephedrine and oxilofrine by LC-MS/MS. In: Schänzer W, Geyer H, Gotzmann A, Mareck U (eds). Recent advances in doping analysis (18). Sportverlag Strauß, Köln (2010) 152-155
- [O52] Parr MK, Zoellner A, Bureik M, Dragan CA, Schlörer N, Peters F, Maurer HH, Schänzer W.

- Production of metandienone longterm-metabolite using *S. pombe* based biotransformation assay. In: Schänzer W, Geyer H, Gotzmann A, Mareck U (eds). Recent advances in doping analysis (17). Sportverlag Strauß, Köln (2009) 95-96
- [O53] Parr MK, Haenelt N, Fußhöller G, Flenker U, Geyer H, Rodchenkov G, Opfermann G, Schänzer W. Recent steroid findings in "designer supplements". In: Schänzer W, Geyer H, Gotzmann A, Mareck U (eds). Recent advances in doping analysis (17). Sportverlag Strauß, Köln (2009) 71-80
- [O54] Pozo OJ, Lootens L, Van Eenoo P, Deventer K, Meuleman P, Leroux-Roels G, Parr MK, Schänzer W, Delbeke FT. Combination of liquid-chromatography tandem mass spectrometry in different scan modes with human and chimeric mouse urine for the study of steroid metabolism. *Drug Test Anal 1* (2009) 554-567
- [O55] Orlovius AK, Guddat S, Parr MK, Kohler M, Gütschow M, Thevis M, Schänzer W. Terbutaline sulfoconjugate: Characterisation and urinary excretion monitored by LC/ESI-MS/MS. *Drug Test Anal 1* (2009) 568-575
- [O56] Brooker L, Parr MK, Cawley A, Flenker U, Howe C, Kazlauskas R, Schänzer W, George A. Development of criteria for the detection of adrenosterone administration by gas chromatography-mass spectrometry and gas chromatography-combustion-isotope ratio mass spectrometry for doping control. *Drug Test Anal 1* (2009) 587-595
- [O57] Pozo OJ, Van Eenoo P, Deventer K, Lootens L, Van Thuyne W, Parr MK, Schänzer W, Sancho JV, Hernández F, Meuleman P, Leroux-Roels G, Delbeke FT. Detection and characterization of a new metabolite of 17 $\alpha$ -methyltestosterone. *Drug Metab Dispos 37* (2009) 2153-62
- [O58] Parr MK, Laudenschlager U, Höfer N, Schänzer W, Diel P. Anabolic and androgenic activity of 19-norandrostenedione after oral and subcutaneous administration - analysis of side effects and metabolism. *Tox Letters 188* (2009) 137-141
- [O59] Parr MK, Fußhöller G, Schlörer N, Opfermann G, Piper T, Rodchenkov G, Schänzer W. Metabolism of androsta-1,4,6-triene-3,17-dione and detection by gas chromatography/mass spectrometry in doping control. *Rapid Commun Mass Spectrom 23* (2009) 207-218
- [O60] Parr MK, Gütschow M, Daniels J, Opfermann G, Thevis M, Schänzer W. Identification of steroid isoxazole isomers marketed as designer supplement. *Steroids 74* (2009) 322-328
- [O61] Köhler K, Parr MK, Geyer H, Mester J, Schänzer W. Serum testosterone and urinary excretion of steroid hormone metabolites after administration of a high-dose zinc supplement. *Eur J Clin Nutr 63* (2009) 65-70
- [O62] Parr MK, Köhler K, Geyer H, Guddat S, Schänzer W. Clenbuterol marketed as dietary supplement. *Biomed Chromatogr 22* (2008) 298-300
- [O63] Parr MK, Kazlauskas R, Schlörer N, Opfermann G, Piper T, Schulze G, Schänzer W. 6 $\alpha$ -Methylandrostenedione: Gas chromatographic mass spectrometric detection in doping control. *Rapid Commun Mass Spectrom 22* (2008) 321-329
- [O64] Parr MK, Geyer H, Gütschow M, Haenelt N, Opfermann G, Thevis M, Schänzer W. New steroids on the "supplement" market. In: Schänzer W, Geyer H, Gotzmann A, Mareck U (eds). Recent advances in doping analysis (16). Sportverlag Strauß, Köln (2008) 73-82
- [O65] Parr MK, Zapp J, Becker M, Opfermann G, Bartz U, Schänzer W. Steroidal isomers with uniform mass spectra of their per-TMS derivatives: Synthesis of 17-hydroxyandrost-3-ones, androst-1-, and -4-ene-3,17-diols. *Steroids 72* (2007) 545-551
- [O66] Parr MK, Geyer H, Hoffmann B, Köhler K, Mareck U, Schänzer W. High amounts of 17-methylated anabolic-androgenic steroids in effervescent tablets on the dietary supplement market. *Biomed Chromatogr 21* (2007) 164-168
- [O67] Kohler M, Parr MK, Opfermann G, Thevis M, Schlörer N, Marnett FJ, Schänzer W. Metabolism of 4-hydroxyandrostenedione and 4-hydroxytestosterone: Mass spectrometric identification of urinary metabolites. *Steroids 72* (2007) 278-286
- [O68] Parr MK, Opfermann G, Piper T, Schänzer W. Characterisation of steroid metabolites recently detected in doping control analyses. In: Schänzer W, Geyer H, Gotzmann A, Mareck U (eds). Recent advances in doping analysis (15). Sportverlag Strauß, Köln (2007) 143-152
- [O69] Parr MK, Orlovius A, Guddat S, Gütschow M, Thevis M, Schänzer W. Sulfoconjugates of heavy volatile nitrogen containing doping substances utilizing LC-MS/MS. In: Schänzer W, Geyer H, Gotzmann A, Mareck U (eds). Recent advances in doping analysis (15). Sportverlag Strauß, Köln (2007) 97-102
- [O70] Mareck U, Haenelt N, Parr MK, Geyer H, Guddat S, Thevis M, Schänzer W. Direct quantification of salbutamol in human urine by means of LC-MS/MS. In: Schänzer W, Geyer H, Gotzmann A, Mareck U (eds). Recent advances in doping analysis (15). Sportverlag Strauß, Köln

(2007) 87-96

[O71] Köhler K, Geyer H, Guddat S, Orlovius A, Parr MK, Thevis M, Mester J, Schänzer W. Sibutramine found in chinese herbal slimming tea and capsules. In: Schänzer W, Geyer H, Gotzmann A, Mareck U (eds). Recent advances in doping analysis (15). Sportverlag Strauß, Köln (2007) 367-370

[O72] Schänzer W, Geyer H, Fußhöller G, Halatcheva N, Kohler M, Parr MK, Guddat S, Thomas A, Thevis M. Mass spectrometric identification and characterization of a new long-term metabolite of metandienone. Rapid Commun Mass Spectrom 10 (2006) 2252-2258

[O73] Geyer H, Mareck U, Köhler K, Parr MK, Schänzer W. Cross-contaminations of vitamin- and mineral-tablets with metandienone and stanozolol. In: Schänzer W, Geyer H, Gotzmann A, Mareck U (eds). Recent advances in doping analysis (14). Sport und Buch Strauß, Köln (2006) 11-16

[O74] Opfermann G, Kohler M, Fußhöller G, Parr MK, Sigmund G, Schänzer W. Comparison of uncertainties: the standard deviations of the method of two calibration curves with different preparatory steps. In: Schänzer W, Geyer H, Gotzmann A, Mareck U (eds). Recent advances in doping analysis (14). Sport und Buch Strauß, Köln (2006) 489-492

[O75] Köhler K, Parr MK, Geyer H, Bode C, Schänzer W. Serum testosterone and urinary steroid profiles after administration of a zinc supplement. In: Schänzer W, Geyer H, Gotzmann A, Mareck U (eds). Recent advances in doping analysis (14). Sport und Buch Strauß, Köln (2006) 403-406

[O76] Kohler M, Parr MK, Opfermann G, Schänzer W. Metabolism of 4-hydroxyandrostenedione and 4-hydroxytestosterone. In: Schänzer W, Geyer H, Gotzmann A, Mareck U (eds). Recent advances in doping analysis (14). Sport und Buch Strauß, Köln (2006) 169-179

[O77] Schänzer W, Geyer H, Fußhöller G, Halatcheva N, Kohler M, Parr MK, Guddat S, Thomas A, Thevis M. Mass spectrometric identification and characterization of a new long-term metabolite of metandienone. In: Schänzer W, Geyer H, Gotzmann A, Mareck U (eds). Recent advances in doping analysis (14). Sport und Buch Strauß, Köln (2006) 217-218

[O78] Parr MK, Opfermann G, Schänzer W. Detection of new 17-alkylated anabolic steroids on WADA 2006 list. In: Schänzer W, Geyer H, Gotzmann A, Mareck U (eds). Recent advances in doping analysis (14). Sport und Buch Strauß, Köln (2006) 249-258

[O79] Parr MK, Fußhöller G, Opfermann G, Kohler M, Hebestreit M, Schänzer W. Synthesis of reference compounds for the identification of metabolites of 4-hydroxytestosterone. In: Schänzer W, Geyer H, Gotzmann A, Mareck U (eds). Recent advances in doping analysis (13). Sport und Buch Strauß, Köln (2005) 65-74

[O80] Parr MK, Opfermann G, Schänzer W. Analytical properties of 4-hydroxysteroids and some esters. In: Schänzer W, Geyer H, Gotzmann A, Mareck U (eds). Recent advances in doping analysis (12). Sport und Buch Strauß, Köln (2004) 129-139

[O81] Parr M, Geyer H, Opfermann G, Schänzer W. Prescription drugs and new anabolic steroids in nutritional supplements. In: Schänzer W, Geyer H, Gotzmann A, Mareck U (eds). Recent advances in doping analysis (12). Sport und Buch Strauß, Köln (2004) 71-80

[O82] Geyer H, Gülker A, Mareck U, Parr MK, Schänzer W. Some good news from the field of nutritional supplements. In: Schänzer W, Geyer H, Gotzmann A, Mareck U (eds). Recent advances in doping analysis (12). Sport und Buch Strauß, Köln (2004) 91-97

[O83] Parr MK, Geyer H, Sigmund G, Köhler K, Schänzer W. Screening of nutritional supplements for stimulants and other drugs. In: Schänzer W, Geyer H, Gotzmann A, Mareck U (eds). Recent advances in doping analysis (11). Sport und Buch Strauß, Köln (2003) 67-75

[O84] Parr MK, Geyer H, Reinhart U, Schänzer W. Analytical strategies for the detection of non-labelled anabolic androgenic steroids in nutritional supplements. Food Addit Contam 21 (2004) 632-640

[O85] Machnik M, Due M, Parr M, von Kuk C, Schänzer W. Case study: Doping substances in equestrian food supplements. Chromatographia 59 (2004) S131-S135

[O86] Geyer H, Parr MK, Mareck U, Reinhart U, Schrader Y, Schänzer W. Analysis of non-hormonal nutritional supplements for anabolic-androgenic steroids - results of an international study. Int J Sport Med 25 (2004) 124-129

[O87] Mahler N, Geyer H, Parr M, Kamber M. Untersuchung von Nahrungsergänzungsmitteln des Schweizer Marktes. Schweizerische Zeitschrift für Sportmedizin und Sporttraumatologie 3 (2004) 133

[O88] Machnik M, Due M, Parr MK, Schänzer W. Anabole Steroide in pflanzlichen Arzneimitteln für Pferde. Pferdeheilkunde 19 (2003) 155-158

[O89] Geyer H, Bredehöft M, Mareck U, Parr M, Schänzer W. High doses of the anabolic steroid metandienone found in dietary supplements. Eur J Sport Sci 3 (2003) 1

[O90] Parr MK, Geyer H, Gülker A, Mareck U, Schänzer W. Nahrungsergänzungsmittel-Alternativen mit geringem Dopingrisiko. *Leistungssport* 6 (2003) 31-32

[O91] Machnik M, Düe M, Parr MK, Schänzer W. Anabolic steroids in plant medicines for horses. In: Schänzer W, Geyer H, Gotzmann A, Mareck U (eds). *Recent advances in doping analysis* (11). Sport und Buch Strauß, Köln (2003) 85-90

[O92] Geyer H, Bredehöft M, Mareck U, Parr MK, Reinhart U, Schänzer W. Oxandrolone and high doses of metandienone found in nutritional supplements. In: Schänzer W, Geyer H, Gotzmann A, Mareck U (eds). *Recent advances in doping analysis* (11). Sport und Buch Strauß, Köln (2003) 77-84

[O93] Parr MK, Geyer H, Reinhart U, Schänzer W. Approaches towards an improved analysis of nutritional supplements for anabolic androgenic steroids. In: Schänzer W, Geyer H, Gotzmann A, Mareck U (eds). *Recent advances in doping analysis* (10). Sport und Buch Strauß, Köln (2002) 87-96

[O94] Geyer H, Parr MK, Reinhart U, Schrader Y, Mareck U, Schänzer W. Analysis of non-hormonal nutritional supplements for anabolic androgenic steroids - an international study. In: Schänzer W, Geyer H, Gotzmann A, Mareck U (eds). *Recent advances in doping analysis* (10). Sport und Buch Strauß, Köln (2002) 83-85

[O95] Geyer H, Bredehöft M, Mareck U, Parr M, Schänzer W. Hohe Dosen des Anabolikums Metandienon in Nahrungsergänzungsmitteln gefunden. *Deutsche Apotheker Zeitung* 142 (2002) 50

[O96] Henze MK, Opfermann G, Spahn-Langguth H, Schänzer W. Screening of beta-2 agonists and confirmation of fenoterol, orciprenaline, reproterol and terbutaline with gas chromatography-mass spectrometry as tetrahydroisoquinoline derivatives. *J Chromatogr B* 751 (2001) 93-105

[O97] Henze MK, Spahn-Langguth H, Schänzer W. Reactions of salbutamol and reproterol with urine matrix components - preliminary results. In: Schänzer W, Geyer H, Gotzmann A, Mareck-Engelke U (eds). *Recent advances in doping analysis* (9). Sport und Buch Strauß, Köln (2001) 29-34

[O98] Henze MK, Opfermann G, Spahn-Langhuth H, Schänzer W. Screening of beta-2-agonists and confirmation of fenoterol, reproterol, orciprenaline and terbutaline after cyclisation with formaldehyde. In: Schänzer W, Geyer H, Gotzmann A, Mareck-Engelke U (eds). *Recent advances in doping analysis* (8). Sport und Buch Strauß, Köln (2000) 59-68

[O99] Henze MK, Opfermann G, Schänzer W. Liquid-liquid extraction-pH profiles of selected beta-2-sympathomimetic agonists. In: Schänzer W, Geyer H, Gotzmann A, Mareck-Engelke U (eds). *Recent advances in doping analysis* (7). Sport und Buch Strauß, Köln (1999) 335-340

several conference reports, short communications, editorials, and letters to the editor

**Projects** Several research projects related to quality assurance of drugs, biopharmaceuticals, and dietary supplements,  
 method development and analytical insights in instrumental analyses  
 anti-doping research  
 pharmacokinetics including drug metabolism

**Memberships** Deutsche Pharmazeutische Gesellschaft (DPhG), Fachgruppe Arzneimittelkontrolle und Arbeitsgemeinschaft Arzneimittelsicherheit/ Arzneimittelfälschungen, Lebensmittelchemische Gesellschaft, Gesellschaft Deutscher Chemiker (GDCh), Deutscher Hochschulverband,  
 Sachverständige für die Fächergruppe Pharmazeutische Analytik im Institut für Medizinische und pharmazeutische Prüfungsfragen

**Other Relevant Information**