



**33rd International Winter-Workshop
Clinical, Chemical and
Biochemical Aspects of Pteridines
and Related Topics**



**Society for Exploitation of Education and Research in
Immunology and Infectious Diseases, Innsbruck**

**in collaboration with
The International Society of Pteridinology**

**and The Austrian Society of
Laboratory Medicine and Clinical Chemistry
(DFP approved, ID 498089, total 22P)**

www.pteridines.org – www.oeglmkc.at - www.neopterin.net

February 25th – 28th, 2014

in

Innsbruck, Austria



MEDIZINISCHE UNIVERSITÄT
INNSBRUCK

- Location:** **Center for Chemistry and Biochemistry (CCB)**
Innrain 80, Innsbruck, Austria
Seminar Room M01.490 (1st floor)
- Scientific Committee:** Fuchs D (Innsbruck)
Griesmacher A (Innsbruck)
Melichar B (Olomouc)
Reibnegger G (Graz)
Weiss G (Innsbruck)
Werner ER (Innsbruck)
- Honorary Member:** Pfleiderer W (Konstanz)
- Scientific Goal:** The purpose of the workshop is to bring together researchers and clinicians being engaged or interested in a wide spectrum of issues covering chemistry, enzymology, transport and clinical aspects of pteridines and folates and related topics.
- Sessions:** Neopterin, biopterin, tryptophan, phenylalanine...
analysis of
biochemistry of
chemistry of
clinical biochemistry of
in immunology
in metabolic disorders
in disease
- Language:** The official conference language is English
- Presentation:** Beamer (PC)
- Lectures:** 20 minutes (including 5 minutes for discussion)
- Publication:** Abstracts will be published in PTERIDINES (vol. 25, 2014)

Tuesday, February 25th, 2014afternoon

1:45 *Get-Together-Coffee*

2:15 **Opening remarks (What is all about)**

Fuchs D (Innsbruck, Austria)

2:25 – 4:05 **Chair:** Liedl K (Innsbruck, Austria), Reibnegger G (Graz, Austria)

Computed Biochemistry

2:25 **QT-AIM analysis of neutral, cationic and anionic pterin**

Reibnegger G (Graz, Austria)

2:45 **Dynamic regulation of phenylalanine hydroxylase**

Fuchs JE, Fuchs D, Liedl KR (Innsbruck, Austria)

3:05 **The structure and function of phenylalanine hydroxylase from *Legionella pneumophila*, a thermostable enzyme with a major functional role in pyomelanin synthesis**

Flydal MI, Leiros H-K, Chatfield CH, Zheng H, Gunderson FF, Aubi O, Cianciotto NP, Martinez A (Bergen, Norway)

3:25 **Interaction targets of kaempferol within inflammatory pathways**

Gostner JM, Fuchs JE, Becker K, Schennach H, Ueberall F, Fuchs D (Innsbruck, Austria)

3:45 **Interaction of *Carthamus tinctorius* lignin arctigenin with the binding site of tryptophan-degrading enzyme indoleamine 2,3-dioxygenase**

Schuster D, Temml V, Kuehnl S, Schwaiger S, Stuppner H, Fuchs D (Innsbruck, Austria)

4:05 – 4:30 *Coffee Break*

4:30 – 5:50 **Chair:** Hammerer-Lercher A (Innsbruck, Austria), Seger C (Innsbruck, Austria)

Analytical Biochemistry

4:30 **Development and validation of an online-SPE LC-MS/MS method for the quantification of iohexol: A milestone towards the clinical use of the iohexol clearance method for the determination of the glomerular filtration rate (GFR)**

Seger C, Neuwirt H, Pfisterer H, Mayer G, Griesmacher A (Innsbruck, Austria)

4:50 **Comparison of ELISA and HPLC assays to determine blood kynurenine concentrations in men and mice**

Haara A, Geisler S, Becker K, Gostner JM, Fuchs D (Innsbruck, Austria)

5:10 **Quantitative analysis of tryptophan metabolites in human plasma by liquid chromatography - high resolution mass spectrometry (LC-hr-MS)**

Pitterl F, Sperner-Unterweger B, Fuchs D, Oberacher H (Innsbruck, Austria)

5:30 **Serum tryptophan, kynurenine, phenylalanine, tyrosine, nitrite and neopterin concentrations in 100 blood donations**

Geisler S, Mayersbach P, Becker K, Schennach H, Fuchs D (Innsbruck, Austria)

6:00 *Dinner (Cafeteria 80/82, ground floor)*

Wednesday, February 26th, 2014 – morning

9:15 – 10:35 Chair: Postolache TT (Baltimore, MD), Sperner-Unterweger B (Innsbruck, Austria)

Neuropsychiatric Disorders

9:15 **Inflammation-induced disturbances of neurotransmitter precursor amino acids is relevant only in a subgroup of patients with depression**

Sperner-Unterweger B, Gamper E, Kohl C, Geisler S, Oberguggenberger A, Meraner V, Egeter J, Kandler Ch, M. Hubalek, Fuchs D (Innsbruck, Austria)

9:35 **Serum phenylalanine and tyrosine concentrations in euthymic bipolar disorder**

Reininghaus EZ, McIntyre RS, Lackner N, Geisler S, Bengesser S, Birner A, Reininghaus B, Kapfhammer HP, Meinitzer A, Zelzer S, Wallner-Liebmann JS, Mangge H, Fuchs D (Graz & Innsbruck, Austria)

9:55 **Latent neurotropic pathogens, low grade inflammation, and personality traits implicated in suicidal self directed violence**

Postolache T, Cook T, Cloninger R, Giengling I, Gupta N, Shivaneekar S, Igbide A, Kamal S, Stiller J, Brenner L, Fuchs D, Rujescu D (Baltimore, MD; Erie, PA; St.Louis, MO; Washington, DC; Denver, CO; USA; Halle, Germany; Innsbruck, Austria)

10:15 **Tryptophan breakdown in alcoholism**

Mechtcheriakov S, v. Gleissenthall G, Benicke H, Geisler S, Fuchs D (Innsbruck, Austria)

10:35 – 11:00 *Coffee Break*

11:00 – 12:40 Chair: Werner-Felmayer G (Innsbruck, Austria), Pellegrin K (Twenty-nine Palms, CA)

5,6,7,8-Tetrahydrobiopterin, Graft Rejection

11:00 **Alkylglycerol monooxygenase in murine macrophages: regulation in differentiation and dependence on intracellular tetrahydrobiopterin**

Watschinger K, McNeill E, Keller MA, Sailer S, Rauch V, Patel J, Hermetter A, Golderer G, Geley S, Werner-Felmayer G, Channon KM, Werner ER (Innsbruck & Graz, Austria; Oxford, UK)

11:20 **Biosynthesis of pteridines from GTP in different species: an enzymological update based on genome sequence analysis data**

Werner ER (Innsbruck, Austria)

11:40 **Simultaneous determination of tetrahydrobiopterin, dihydrobiopterin and dihydroneopterin in cerebrospinal fluid**

Guibal P, Lévêque N, Doummar D, Roze E, Couderc R, Rodriguez D, Billette de Villemeur T, Moussa F (Paris, France)

12:00 **Tetrahydrobiopterin saves pancreatic isografts from brain death exacerbated ischemia reperfusion injury**

Oberhuber R, Ritschl P, Fabritius C, Cardini B, Resch T, Hermann M, Obrist P, Werner ER, Aigner F, Maglione M, Pratschke J, Kotsch K (Innsbruck & Zams, Austria)

12:45 *Lunch (Cafeteria 80/82, ground floor)*

Wednesday, February 26th, 2014 – afternoon

2:15 – 3:35 **Chair:** Baydar T (Ankara, Turkey), Leblhuber F (Linz, Austria)

Amino Acids, Proteins and Degenerative Disorders

2:15 **The role of homocysteine and B-vitamins in degenerative bone disease**

Herrmann M (Bolzano, Italy)

2:35 **The impact of everyday life barometric pressure on urinary neopterin concentrations in a woman with systemic lupus erythematosus**

Schubert C, Kirschner J, Haberkorn J, Fuchs D (Innsbruck, Austria)

2:55 **Increased stool calprotectin in patients with Alzheimer's disease is associated with low serum tryptophan and phenylalanine**

Leblhuber F, Geisler S, Schuetz B, Fuchs D (Linz & Innsbruck, Austria; Limburg, Germany)

3:15 **TAU Alzheimer's vaccine in clinical trial – first in man, first in class**

Parrak V, Kontsekova E, Novak P, Zilka N, Kovac A, Kovacech B, Novak M (Bratislava, Slovak Republic)

3:35 – 4:00 **Coffee Break**

4:00 – 5:40 **Chair:** Heufler C (Innsbruck, Austria), Weiss G, (Innsbruck, Austria)

Pathways of Inflammation Responses

4:00 **The homologous lipocalins dog Can f 1 and human Lcn-1 direct dendritic cells to induce divergent immune responses corresponding to their allergenicity**

Posch B, Irsara C, Herrmann M, Fuchs D, Reider N, Redl B, Heufler C (Innsbruck, Austria)

4:20 **HFE deficiency critically affects cholesterol homeostasis in mice**

Demetz E, Haschka D, Heim C, Auer K, Asshoff M, Schroll A, Dichtl S, Seifert M, Pechlaner R, Willeit J, Kiechl S, Theurl I, Tancevski I, Weiss G (Innsbruck, Austria)

4:40 **The arachidonic acid metabolome as conserved regulator of cholesterol metabolism**

Demetz E, Schroll A, Auer K, Heim C, Patsch JR, Eller P, Theurl M, Lener D, Stanzl U, Theurl I, Seifert M, Haschka D, Asshoff M, Dichtl S, Nairz M, Huber E, Stadlinger M, Li X, Pallweber P, Scharnagl H, Stojakovic T, März W, Kleber ME, Garlaschelli K, Uboldi P, Catapano AL, Stellaard F, Rudling M, Kuba K, Imai Y, Arita M, Pramstaller PP, Tietge UJF, Trauner M, Norata GD, Claudel T, Hicks AA, Weiss G, Tancevski I (Innsbruck, Austria)

5:00 **Iron homeostasis and immune function in macrophages infected with different intracellular pathogens**

Haschka D, Nairz M, Theurl I, Demetz E, Asshoff M, Mitterstiller AM, Schroll A, Fritsche G, Decker T, Weiss G (Innsbruck & Vienna, Austria)

5:20 **The role of Jak2 in hepcidin-dependent ferroportin internalisation in macrophages**

Aßhoff M, Petzer V, Seifert M, Haschka D, Demetz E, Wagner KU, Weiss G, Theurl I (Innsbruck Austria, Omaha, Nebraska)

6:00 **Dinner (Cafeteria 80/82, ground floor)**

Thursday, February 27th, 2014 – morning

9:15 – 10:55 **Chair:** Troppmair J (Innsbruck, Austria), Gostner JM (Innsbruck, Austria)

Redox Systems and Immune Activation

9:15 **Intracellular signaling pathways controlling redox stress**

Ashraf MI, Koziel K, Haller M, Enthammer M, Khalid S, Hermann M, Drasche A, Vallant S, Dragun D, Troppmair J (Innsbruck, Austria & Berlin, Germany)

9:35 **Cytotoxic and interferon-gamma mediated effects of glucose and insulin *in vitro***

Engin AB, Karahalil B, Coskun E (Ankara, Turkey)

9:55 **Influence of antibiotic gentamicin on mitogen-induced tryptophan breakdown *in vitro*, effects similar to standard food preservatives**

Gostner JM, Becker K, Geisler S, Ueberall F, Schennach H, Fuchs D (Innsbruck, Austria)

10:15 **Effects of Ag₂O and Al₂O₃ nanoparticles on immunoregulatory circuits *in vitro***

Becker K, Gostner JM, Geisler S, Schennach H, Fuchs D (Innsbruck, Austria)

10:35 **Effect of occupational zinc exposure on erythrocyte folate levels**

Kilicarslan B, Palabiyik SS, Girgin G, Baydar T (Ankara, Turkey)

10:55 – 11:20 Coffee Break

11:20 – 12:40 **Chair:** Fallarino F (Perugia, Italy), Boasso A (London, UK)

Indoleamine 2,3-dioxygenase In Vitro and In Vivo

11:20 **Tryptophan catabolism during HIV infection: incidental occurrence or pathogenic mechanism**

Boasso A, Royle CM, Fuchs D, Graham DR (London, UK & Innsbruck, Austria)

11:40 **Role of hepatic IDO expression in HCV infection**

Lepiller Q, Soulier E, Fuchs D, Baumert T, Stoll-Keller F, Barth H (Strasbourg, France, Innsbruck, Austria)

12:00 **Investigating the NAD metabolome in Ewing Sarcoma**

Mutz CN, Ban J, Niedan S, Kauer MO, Aryee DN, Fuchs D, Heitger A, Kovar H (Vienna & Innsbruck, Austria)

12:20 **Role of the aryl hydrocarbon receptor (AhR) and tryptophan catabolism in endotoxin tolerance**

Fallarino F (Perugia, Italy)

12:45 Lunch (Cafeteria 80/82, ground floor)

Thursday, February 27th, 2014 – afternoon

2:15 – 3:35 **Chair:** Fuith LC (Eisenstadt, Austria), Melichar B (Olomouc, Czech Republic)

Predictive Laboratorydiagnostic Biomarkers

2:15 **Prognostic significance of urinary neopterin in ovarian cancer - a study of the Austrian gynecology oncology group**

Volgger B, Windbichler GH, Graf AH, Bogner G, Kapshammer E, Angleitner-Boubenizek L, Concini H, Ursula Denison U, Sliutz G, Fuith LC; Fuchs D, Marth C (Innsbruck, Bregenz, Eisenstadt, Linz & Vienna, Austria)

2:35 **Association between neopterin concentrations and other biomarkers in patients with breast cancer**

Melichar B, Študentová H, Kalábová H, Šrámek V, Zezulová M, Solichová D, Adam T, Krčmová Kujovská L (Olomouc & Hradec Králové, Czech Republic)

2:55 **Radiation dose, gut toxicity and systemic immune activation in rectal cancer patients treated with neoadjuvant chemoradiation**

Zezulová M, Bartoušková M, Študentová H, Kalábová H, Adam T, Solichová D, Krčmová Kujovská L, Melichar B (Olomouc & Hradec Králové, Czech Republic)

3:15 **Low serum free tryptophan is associated with immune activation, inflammation and predicts mortality in patients with cardiovascular disease, the Ludwigshafen Risk and Cardiovascular Health (LURIC) study**

Murr C, Grammer TB, Kleber ME, Meinitzer A, Böhm BO, März W, Fuchs D (Innsbruck & Graz, Austria; Mannheim, Heidelberg & Ulm, Germany)

3:35 – 4:10 **Coffee Break**

4:10 – 4:50 **Chair:** Schobersberger W (Natters, Austria)

Prognostic Biomarkers in Patients with Sepsis

4:10 **Correlation of neopterin levels in sepsis premature infant to sign and symptoms of neonatal sepsis using Tollner score**

Anggara MY, Effendi SH, Gurnida DA (Bandung, Indonesia)

4:30 **Neopterin rapid test - indicator of infection in ICU, our first experience**

Libek V, Kulic A, Strugar A, Djurdjevic J, Gojkovic I, Simic I (Belgrade, Serbia)

5:00 **Annual General Assembly of the International Society of Pteridinology (ISP)**
(ISP-members only)

6:30 **Dinner (Guido's Restaurant; across the bridge)**

Friday, February 28th, 2014

9:15 – 10:35 Chair: Engin B (Ankara, Turkey), Reininghaus BE (Graz, Austria)

Coronary Heart Disease

9:15 Immune activation and inflammation in patients with cardiovascular disease are associated with higher phenylalanine to tyrosine ratios, the Ludwigshafen Risk and Cardiovascular Health (LURIC) study

Murr C, Grammer TB, Kleber ME, Meinitzer A, Böhm BO, März W, Fuchs D (Innsbruck & Graz, Austria; Mannheim, Heidelberg & Ulm, Germany)

9:35 Effects of a caloric restriction weight loss diet on tryptophan metabolism and inflammatory biomarkers in overweight adults

Strasser B, Berger K, Fuchs D (Hall & Innsbruck, Austria)

9:55 IFN γ +847T/A polymorphism: improvement of genotyping and genetic analysis of the StyJobs/EDECTA cohort

egger C, Wallner V, Weghuber D, Mangge H, Paulweber B, Fuchs D, Baumgartner GB (Salzburg, Graz & Innsbruck, Austria)

10:15 The immune-inflammatory metabolic dysbalance - Medusa´s head in obesity and atherosclerosis

Mangge H (Graz, Austria)

10:35 – 11:00 Coffee Break

11:00 – 12:00 Chair: Girgin G, (Ankara, Turkey), Ledochowski M (Innsbruck, Austria)

In Vitro Testing of Anti-inflammatory Compounds

11:00 Comparison of effects of tranilast, cinnamic acid and anthranilic acid on tryptophan breakdown in human PBMC

Gostner JM, Becker K, Geisler S, Schennach H, Fuchs D (Innsbruck, Austria)

11:20 Bioactivities of two common polyphenolic compounds: verbascoside and catechin
Sipahi H, Gostner JM, Becker K, Charehsaz M, Kirmizibekmez H, Schennach H, Aydin A, Fuchs D (Istanbul, Turkey; Innsbruck, Austria)

11:40 *In vitro* effects of thymol

Becker K, Gostner H, Geisler S, Ueberall F, Schennach H, Fuchs D (Innsbruck, Austria)

12:00 Blair-Curtius-Pfleiderer-Wachter AWARD

Closing remarks

Fuchs D (Innsbruck, Austria)