NEXT GENERATION IN PHARMACOGNOSY | May 11 – 12, 2023

Scientific HMPPA Symposium | **Paracelsus Medical University Salzburg (PMU)**

PROGRAM

Thursday, May 11, 2023

Paracelsus Medical University Salzburg, Strubergasse 21, 5020 Salzburg, Austria

Till 12:00 **Arrival at Paracelsus Medical University Salzburg (PMU)**

12:00 – 13:30 **LUNCH (informal get-together at PMU)**

13:30 – 13:40 **Welcome addresses**
H. Stuppner
HMPPA President, Institute of Pharmacy/Pharmacognosy, University of Innsbruck

13:40 - 14:40 **Session 1**
Chair: Veronika TEMML, PMU Salzburg

13:40 – 13:50 **HAMMERLE Fabian | University of Innsbruck**
Natural extracts for the photodynamic control of mosquito larvae

13:52 – 13:57 **SUNGHANGHWA Yuwathida | Medical University of Vienna**
Isolation and characterization of peptides from *Momordica charantia*

13:59 – 14:04 **WALTL Lorenz | University of Innsbruck, Michael Popp Institute**
Bioinspired meroterpenoids rearrange lipid profiles of innate immune cells towards limiting inflammation

14:06 – 14:16 **GRAFAKOU Maria-Eleni | University of Graz**
In-vitro fermentation of medicinal plant extracts related with mental health by human fecal microbiota

14:18 – 14:23 **COFFEY Christine | University of Vienna**
Characterisation of honokiol derivative, LRK071, as a dual specific RXR agonist and PDE4 inhibitor

14:25 – 14:40 **DISCUSSION**

14:40 - 15:40 **Session 2**
Chair: Fabian HAMMERLE, University of Innsbruck

14:40 – 14:50 **ALILOU Mostafa | University of Innsbruck**
Fungal endophytes as promising sources of bioactive natural products

14:52 – 14:57 **ZELL Lukas | PMU Salzburg**
Systematic Analysis of Synergistic Effects of *Salvia officinalis* Extracts in Cholinesterase Inhibition

14:59 – 15:04 **TIEFENBACHER Stefanie | University of Graz**
Metabolic and pharmacological profiling of the TCM formula Hanshiyi

15:06 – 15:16 **TEMML Veronika | PMU Salzburg**
In Silico analysis of 15-Lipoxygenase activation by selected anti-inflammatory natural products

15:18 – 15:23 **PERMANN Stephan | University of Innsbruck, Michael Popp Institute**
Mechanistic insights into the induction of protectin biosynthesis by a-garcinoic acid in innate immune cells

15:25 – 15:40 **DISCUSSION**

15:40 – 16:10 **C O F F E E B R E A K**

16:10 - 17:05 **Session 3**

Chair: Petra HUBER-CANTONATI, PMU Salzburg

16:10 – 16:20 **KRSTIC Sanja | University of Graz**
Alchemilla vulgaris - the plant with remarkable biopotential

16:22 – 16:27 **LE XUAN Loc | University of Innsbruck, Michael Popp Institute**
Evolutionarily optimized structures to target an ancient cell death program: Identification of a new class of bioinspired ferroptosis inhibitors

16:29 – 16:34 **NICKL Anna | University of Graz**
Phytochemical and pharmacological investigations of *Bergenia crassifolia* in relation to prevention and treatment of endometriosis

16:36– 16:46 **POPOFF Alexander | PMU Salzburg**
Bio source derived extracellular vesicles as potential drugs and characterisation approaches

16:48 – 16:58 **ALZA Natalia | University of Graz**
Deacylcynaropicrin from *Cyclolepis genistoides* as cytoprotective agent against oxidative stress

16:58 – 17:15 **DISCUSSION**

17:15 - 17:35 **IMPULSE LECTURE 1**

Chair: Rudolf Bauer

17:15 – 17:45 **Impulse lecture 1: Dr. KELBER Olaf**
Steigerwald Arzneimittelwerk GmbH, Research & Development, Bayer Consumer Health, Sachs Building, Havelstraße 5, 64295 Darmstadt, Germany
"Pharmacognosy from the industry perspective"

17:45 – 18:00 **DISCUSSION**

From 18:30 **SOCIAL EVENING**
Augustiner Braugasthof Krimpelstätter
Müllner Hauptstraße 31, 5020 Salzburg

ABSTRACT Session 3_5

Name: Natalia Alza

Status: ☐ PhD student ☒ PostDoc

Institution: University of Graz

Supervisor: Univ. Prof. Dr. DDr.h.c. Rudolf Bauer

Deacylcynaropicrin from Cyclolepis genistoides as cytoprotective agent against oxidative stress

Alza, Natalia[1,2], Pferschy-Wenzig, Eva-Maria[3]; Bauer, Rudolf[3]; Salvador, Gabriela[1,4]

[1]*Instituto de Investigaciones Bioquímicas de Bahía Blanca, Bahía Blanca, 8000, Argentina.*
[2]*Departamento de Química-Universidad Nacional del Sur (UNS).*
[3]*Department of Pharmacognosy, Institute of Pharmaceutical Sciences, University of Graz, Graz, 8010, Austria.*
[4]*Departamento de Biología, Bioquímica y Farmacia-UNS.*

Oxidative stress (OS) is considered a common pathological mechanism in many diseases. Specifically in neurodegenerative disorders, OS directly or indirectly triggers neuronal death as a consequence of mitochondrial dysfunction, proteostasis alterations, inflammation, and dysregulation of antioxidant defenses. The aim of our work was to evaluate the potential neuroprotective effect of the aqueous extract of *Cyclolepis genistoides* D. Don (Asteraceae) and bioactive constituents against cellular OS. This species has been used in folk medicine in Northern and central Argentina for bone pain (analgesic properties) and kidney diseases, and as a diuretic. In our lab, we selected *C. genistoides* from a screening of Argentinian medicinal plants based on its ability to reduce OS induced by iron in IMR-32 neuroblastoma cells by means of a reduction of reactive oxygen species production and lipid peroxidation (at 20 µg/ml). LC-MS/MS analysis of the aqueous extract showed the presence of phenolic compounds (such as caffeoylquinic acids, luteolin and its glucuronide) and two sesquiterpene lactones, deacylcynaropicrin (DACP) and its 11,13-dihydro derivative. A bioguided fractionation of *C. genistoides* extract afforded the isolation of DACP. To elucidate the biological effect of DACP, the cellular response against OS was studied in the presence of the compound using IMR-32 cells exposed to ferric ammonium citrate (FAC) as OS inducer. DACP at 10 and 20 µM was able to inhibit reactive oxygen species production in FAC-exposed cells. The potential mechanism by which DACP reduces cellular OS was investigated through its action on two redox-sensitive transcription factors, NFR2 and NF□B. During iron-induced OS, DACP exposure rendered the nuclear translocation of NRF2, associated with the expression of antioxidant genes. One of them is the glutamate-cysteine ligase catalytic subunit, which was upregulated in the presence of DACP. Interestingly, the same effect was observed in cells exposed to *C. genistoides* extract. Moreover, NF□B (involved in the inflammatory response) nuclear translocation induced by FAC was blocked by DACP. Our results suggest that DACP is responsible for the biological activity of *C. genistoides* aqueous extract and could be a neuroprotective agent during iron-induced OS scenarios.