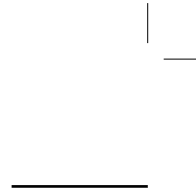
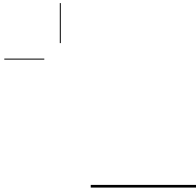




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**Dear Madame/Sir,**

It gives me great pleasure to welcome you, on behalf of the Organizing Committee, to the V Central European Congress of Life Sciences – 2013 Eurobiotech in the Royal City of Kraków. The Congress is held under the honorary patronage of the Voivode of the Malopolska Voivodeship, the Marshal of the Malopolska Voivodeship and the Mayor of the Royal Capital City of Kraków.

The Congress has been organized by Cracow University of Technology (member of the Organizing Committee for the first time this year), the University of Agriculture, the Jagiellonian University, Biotechnology Committee of Polish Academy of Sciences, Polish Federation of Biotechnology, Malopolska Center of Biotechnology, Life Science Center in Krakow, Jagiellonian Center of Innovation Ltd. and Targi w Krakowie Ltd.

Satellite sessions devoted to stem cells and bio-business discussions will precede the opening ceremony of the Congress.

The scientific programme of the Eurobiotech 2013 will combine white and green biotechnology topics as well as legislation problems in the biotechnology sector.

Outstanding scientists from Europe, USA and other countries have been invited to deliver lectures on such important issues as nanotechnologies, renewable energy, environmental biotechnology or animal biotechnology in biomedicine and agriculture and many others.

We hope that the V Eurobiotech Congress and the accompanying exhibitions will enable you to exchange your scientific opinions and to present the latest biotechnological achievements and future trends in the area of white and green biotechnologies.

We are convinced that the Congress being of great value to the Polish science will encourage the invited scientists and businessmen to start long-term scientific and business cooperation.

We warmly welcome you to the Congress hoping that its main goal, providing you with a scientific programme of the highest quality, will be achieved and that you will spend wonderful time in our vibrant city with great cultural and historical dignity

On behalf of the Congress Organizing Committee

Krakow, October 2013

Henryk Koloczek  
Congress Chair  
Cracow University of Technology

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## Organizing Committee

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Chair

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Jagiellonian University in Krakow

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National Research Institute of Animal Production Balice/Krakow

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Mayor of the Royal Capital City of Krakow

**Prof. Michał Kleiber**

President of the Polish Academy of Sciences

**Prof. Andrzej Białas**

President of the Polish Academy of Arts and Sciences

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## Organizers

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Cracow University of Technology



Jagiellonian University in Krakow



University of Agriculture in Krakow



Polish Federation of Biotechnology



Biotechnology Committee of Polish Academy of Sciences



Małopolska Center of Biotechnology



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## Honorary Committee and Partners

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The Honorary Patronage of the Voivode of the Małopolska Voivodeship  
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## Congress Partners

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The LifeScience Cluster in Krakow



Jagiellonian Centre of Innovation



Małopolska Kraków Region – Malopolska Cracow Region



U.S Embassy Warsaw - Office of Agricultural Affairs



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## Media Partners

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## General information

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### **Venue: Congress Center of Agricultural University**

Congress Center of Agricultural University is one of the most modern facilities designed to held congresses, conferences, seminars and other events. Good location and efficient internal infrastructure are undoubtedly its great advantages.

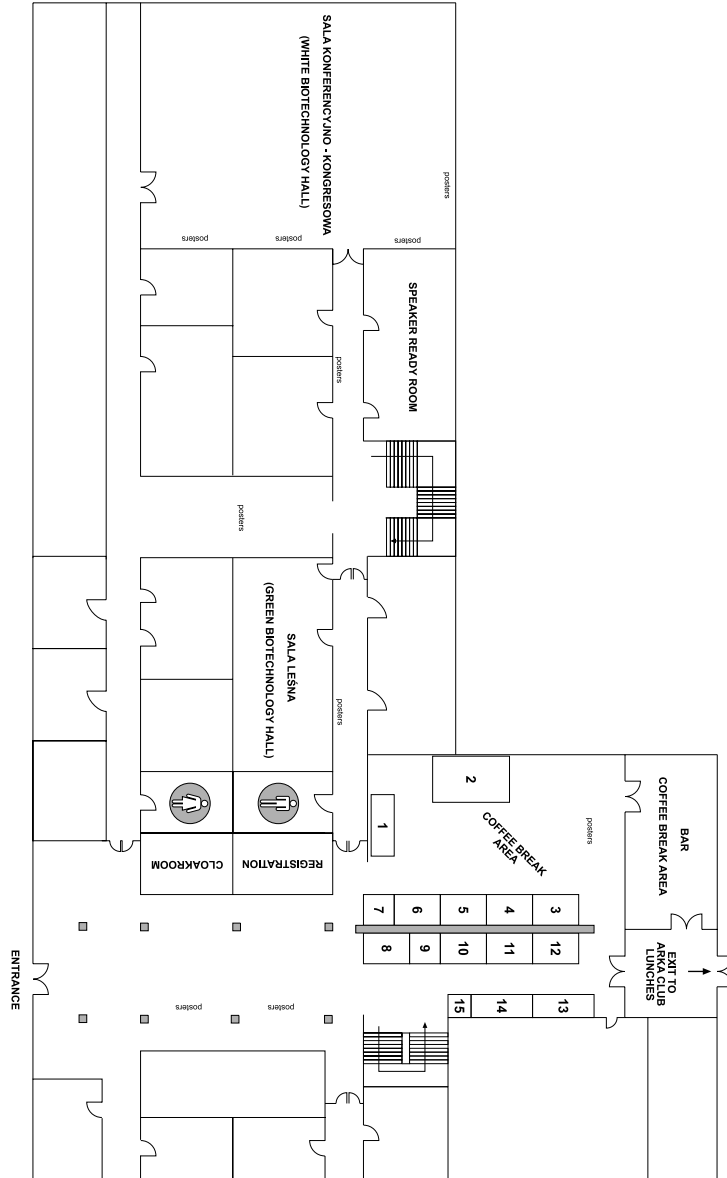
#### **Address:**

**Congress Center of Agricultural University**  
**Al. 29 Listopada 46**  
**31-425 Krakow**

#### **Internet**

Wireless Internet is available at the Congress Venue

## Plan of the venue



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## Events

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### Coffee breaks

Served in the lobby hall (exhibition area) of the Congress Venue on the following days:

- 8th of October at 3.25 pm – 3.55 pm
- 9th of October at 10.00 am – 10.30 am and at 3.30 pm – 4.00 pm
- 10th of October at 10.00 am – 10.30 am and 4.30 pm – 5.00 pm
- 11th of October at 10.00 am – 10.30 am

### Lunches

Served in La Strada Restaurant in Arka Club the on the following days:

- 9th of October at 1.00 pm – 1.40 pm
- 10th of October at 1.00 pm – 2.00 pm
- 11th of October at 2.00 pm – 2.30 pm

### Welcome cocktail – 8th October

All registered Congress participants are kindly invited to join the welcome cocktail on the 8th of October, which takes place from 7.00 pm till 8.30 pm in the lobby of the Congress Venue.

#### Address:

Congress Center of Agricultural University  
Al. 29 Listopada 46, Kraków

### Conference get-together party – 9th October at 8.30 pm

The conference dinner is organized in Klezmer Hois Restaurant which is situated in the heart of Krakow's Kazimierz (the former Jewish district), 70 metres from the Remuh Synagogue, in the 16 th century building that until the Word War II housed the ritual bathhouse, one of the oldest in the city. Klezmer-Hois is a unique restaurant that thanks to the traditional Galician Jewish cuisine as well as décor and artistic atmosphere evokes the ambience of the pre-war tradition of Jewish Kazimierz. The dinner will be accompanied by concert of traditional Klezmer music.

#### Address:

Klezmer Hois Restaurant  
ul. Szeroka 6, Kraków

#### IMPORTANT:

**The invitations to a dinner will be handed at the registration desk together with the conference materials and badges. Please remember to bring the invitation with you for a dinner.**

### The meeting of Hosting Committee 17<sup>th</sup> ECB

The meeting of Hosting Committee 17<sup>th</sup> ECB will be held at Cracow University of Technology, Faculty of Engineering and Chemical Technology, Rm. 12 at 7.00 pm , Warszawska str 24 on 10<sup>th</sup> of October, 2013.

### General Meeting of Polish Federation of Biotechnology

General Meeting of Polish Federation of Biotechnology will be held on 10<sup>th</sup> of October 2013 at 2.30 pm. in the Congress Centre of Agricultural University. (Green Biotechnology Hall)

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## Registration and Presentations

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### Registration

Registration desk will be open at the main hall of Congress Centre of Agriculture University:

8th October (Tuesday): 10.00 am – 6.00 pm  
9 th October (Wednesday): 8.00 am – 6.00 pm  
10th October (Thursday): 8.00 am – 6.00 pm  
11 th October (Friday): 8.00 am – 2.00 pm

Registration's desk telephone number:

**+48 506 047 202**

**+48 502 309 683**

### Presentations

**Please deliver your lecture on a USB flash drive, at least 30 minutes before the presentation.**

You will be able to use your own computer, but Mac users should have VGA video adapter to connect computer to the projector.



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## Life Science Open Space

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Life Science Open Space (LSOS2013) is a conference dedicated to innovations in the field of life science.

The main objective of the event is to promote the innovative interdisciplinary collaboration in the area of life science by:

- presentations of concrete technology and/or cooperation offers,
- presentations of capabilities, needs and ideas,
- networking and direct partnering-type meetings with people representing a variety of interests.

LSOS 2013 is organized in an approach that will ensure the interaction between inventors and the end - users of such advances.

This networking event will bring together researchers, innovators, developers and users of life science technologies especially interested in:

1. healthcare and therapeutics
2. healthy food
3. lifestyle and beauty
4. e-health and telemedicine
5. direct environment and the human environment
6. education and social awareness
7. biotechnology in applications mentioned above

LSOS 2012 event is organized for the Members and Partners of LifeScience Krakow (LSK) cluster, who would like to take an active part and present their technology or capabilities in order to create awareness and generate opportunities for future collaborations.

In this respect the event embodies a knowledge marketplace for LifeScience Krakow cluster and is open to members of European clusters partnering with LSK – including but not limited to EDCA, CEBR, SCANBALT or GIN

## Life Science Open Space

Time	Program	Koncertowa	Cafe/Bar
9:30	Openning and welcome.		
9:45	Keynote presentation.		
10:00	Presentation sesion – Collaborative offers #1	P#1	individual offer / networking
10:15		P#2	
10:30		P#3	
10:45		P#4	
11:00		P#5	
11:15	Coffe break / networking #1		
11:30			
11:45			
12:00	Presentation sesion – Collaborative offers #2	P#6	individual offer / networking
12:15		P#7	
12:30		P#8	
12:45		P#9	
13:00		P#10	
13:15	Coffe break / networking #2		
13:30			
13:45			
14:00	Presentation sesion – Collaborative offers #3	P#11	individual offer / networking
14:15		P#12	
14:30		P#13	
14:45		P#14	
15:00		P#15	
15:15	Coffe break / networking #3		
15:30			
15:45			
16:00	Presentation sesion – Collaborative offers #4	P#16	individual offer / networking
16:15		P#17	
16:30		P#18	
16:45		P#19	
17:00		P#20	
17:15	Conclusion and summary + networking		
17:30			
17:45			

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## Eurobiotech 2013 “White and Green Biotechnology”

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### Tuesday, 8th of October 2013

- 10.00–18.00 Registration of participants**
- 10.00–18.00 Business session - Life Science Open Space (Arka Club)**  
Chair: Kazimierz Murzyn, LifeScience Cluster Krakow
- 14.00–17.00 Session: Induced pluripotent stem cells: a future of biomedicine (Green Biotechnology Hall)**  
Chair: Alicja Józkwicz, Jagiellonian University, Poland
- 14.00–14.30** Maria Anna Ciemerych-Litwinienko, University of Warsaw, Poland  
*There and back again: short history of reprogramming. From a somatic cell to an inducible pluripotent cell.*
- 14.30–15.00** Regina Grillari, University of Natural Resources and Life Sciences, Austria  
*The importance of peeing earnest: urine derived cells as model systems in biology and biomedicine.*
- 15.00–15.25** Leonora Bużańska, Mossakowski Medical Research Centre, Polish Academy of Sciences, Poland  
*Stem cells in drug development and toxicity testing: implementation of emerging technologies.*
- 15.25–15.55** Coffee break (**lobby hall – exhibition area**)
- 15.55–16.20** Jacek Jaworski, The International Institute of Molecular and Cell Biology, Poland  
*Use of cell reprogramming technologies for neurobiological research*
- 16.20–16.45** Maciej Wiznerowicz, Greater Poland Oncology Center, Poland  
*Epigenetic mechanisms of human induced pluripotent stem cells (iPS).*
- 16.45–17.10** Alicja Józkwicz, Jagiellonian University, Poland  
*Hypoxia and oxidative stress in reprogramming and differentiation.*
- 17.10–17.25** Anna Skibińska-Kijek, Abo-LAB  
*Cell Signaling Antibodies as a Tool for iPSCs Analysis*
- 18.00–19.00 Opening Ceremony (White Biotechnology lecture hall)**  
**Plenary lecture: Neal C. Stewart Jr., University of Tennessee, Knoxville, TN, USA**  
*Synthetic Plant Biotechnology Tools for Precise Transgene Expression*  
Chair: Kazimierz Strzałka
- 19.00–20.30 Welcome cocktail (lobby hall – exhibition area)**

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## Eurobiotech 2013 “White and Green Biotechnology”

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### Wednesday, 9th of October 2013

**9.00–10.00 Plenary lecture: Frank van Breusegem, VIB Gent, Belgium (White Biotechnology lecture hall)**  
*Oxidative Stress Signal Transduction in plants*  
Chair: Stanisław Karpiński

**10.00–10.30 Coffee break ( lobby hall – exhibition area)**

#### **White Biotechnology**

##### **Session: Nanotechnologies in industrial processes (White Biotechnology lecture hall)**

Coordinator: Henryk Kotoczek

Chair: Zygmunt Kowalski

**10.30–11.00** Leszek Tymczyna, Lublin University of Agriculture, Poland  
*The use of biofiltration and nanosilver in the rendering plants*

**11.00–11.30** Agata Markowska-Szczupak, West Pomeranian University of Technology, Poland  
*The use of titanium dioxide for purification, self-cleaning and disinfection in urban infrastructures*

**11.30–12.00** Marcin Banach, Cracow University of Technology, Poland  
*Nanosilver – a new product for disinfection treatment*

**12.00–12.30** Zygmunt Kowalski, Cracow University of Technology, Poland  
*Pig manure treatment by filtration*

**12.30–13.00** Katarzyna Gorazda, Cracow University of Technology, Poland  
*Phosphorus cycle – possibilities for its rebuilding*

**13.00–13.40** Lunch

#### **Green Biotechnology**

##### **Session: Plant Molecular Breeding (Green Biotechnology Lecture Hall)**

Coordinator: Kazimierz Strzałka

Chair: Dariusz Grzebelus

**10.30–11.00** Andreas Bachmair, Vienna University, Austria  
*Engineering of a plant retrotransposon for transposon mutagenesis in crop plants*

**11.00–11.30** Petr Smykal, Palacky University Olomouc, Czech Republic  
*Pea resistance genes to Pea Seed-borne Mosaic Virus (PSbMV), from basic science to applications in breeding*

**11.30–12.00** Marcin Rapacz, Agricultural University in Krakow, Poland  
*High through output phenotyping and genotyping – steps for drought tolerance improvement in barley*

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## Eurobiotech 2013 “White and Green Biotechnology”

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- 12.00–12.15** Joanna Machczyńska, Piotr Bednarek, Janusz Żimny  
*In vitro induced variation in Triticale cv. Bogó*
- 12.15–12.30** Alicja Macko – Podgórní, Krzysztof Smółka, Dariusz Grzebelus  
*Conversion of a DArT marker differentiating wild and cultivated carrots to a codominant CAPS marker*
- Green Biotechnology**
- Session: Environmental Biotechnology  
(Green Biotechnology Lecture Hall)  
Chair: Katarzyna Turnau**
- 12.30–13.00** M.N.V. Prasad, Hyderabad University, India  
*Phytoremediation crops for sustainable biofuels – scope and limitations the session to be continued at 16.00 this afternoon*
- 13.00–13.40** Lunch
- Violet Biotechnology**
- Legislation for biotechnologists  
(Green Biotechnology Lecture Hall)  
Chair: Tomasz Twardowski**
- 13.40–13.50** opening  
Tomasz Twardowski, Biotechnology Committee, PAS, Poland  
*Biotechnology regulation and society, Anno Domini 2013*
- 13.50–14.10** Andrew Tommey, DuPont Pioneer, Brussels  
*Plenish, a GM-soya bean with altered fatty acid profile and direct consumer benefits*
- 14.10–14.30** President Alicja Adamczak, Polish Patent Office, Poland  
*Patenting In Biotechnology and Unitary Patent, Poland and European Patent Organisation*  
Ewa Waszkowska  
*European patents for human embryonic stem cells*
- 14.30–14.50** Agnieszka Dalbiak, Ministry of Environment, Poland  
*Current Legislation of Biotechnology In Poland and EU*
- 14.50–15.10** Sławomir Sowa, IHAR, Poland  
*Genetically Modified Plants In Polish Agriculture*
- 15.10–15.30** Rainer Friedrich, df-mp, Germany  
*Recent developments in gene and stem cell patenting in Europe*
- 15.30–16.00** Coffee break

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## Eurobiotech 2013 “White and Green Biotechnology”

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### White Biotechnology

#### Session: Development of renewable energy in biotechnology (White Biotechnology Lecture Hall)

Chair: Henryk Koloczek

- 16.00–16.45** Iriñi Angelidaki, Technical University of Denmark  
*Algae biorefinery*
- 16.45–17.30** Andrei A. Sibirny, UAN, Ukraine  
*Metabolic Engineering of Non-Conventional Yeasts for Construction of the Advanced Producers of Lignocellulosic Ethanol*
- 17.30–18.15** L. Chrzanowski, Poznan University of Technology, Poland  
*Rhamnolipids – production and application in bioremediation*
- 18.15–19.00** Roman Marecik, Poznan University of Life Sciences, Poland  
*Enhancement of biogas production from lignocellulose materials by biological pretreatment with *Trichoderma* sp*

### Green Biotechnology

#### Session: Environmental Biotechnology - continuation (Green Biotechnology Lecture Hall)

Chair: Katarzyna Turnau

- 16.00–16.30** Alan J.M. Baker, University of Queensland, Australia  
*Metallophytes: a biodiversity and phytotechnological resource for soil clean-up, phytomining and mine site restoration*
- 16.30–17.00** Jaco Vangronsveld, Hasselt University, Belgium  
*Bioaugmentation with engineering endophytic bacteria improves phytoremediation in the field*
- 17.00–17.30** Irene Lichtscheidl, Vienna University, Austria  
*Support of Plant Growth by Selected Soil Microbes and Manipulation of Soil Texture in Metal Contaminated Soil*
- 17.30–18.00** Edwin J. P. Cadenas, UNASAM, Huaraz, Peru  
*Highland plants under extreme conditions and their phytoremediation potential*
- 18.00–18.20** Stefan Sassmann, Vienna University, Austria  
*A study of heavy metal impact, uptake and structural changes in the moss *Physcomitrella patens**
- 18.20–18.40** Wolfram Adlassnig, Vienna University, Austria  
*Metal tolerant mosses: perspectives for bioremediation*
- 18.40–19.00** Paulina Supel, Paweł Kaszycki, Agricultural University, Krakow, Poland  
*FISH detection of autochthonous bacteria of ceramic clayey raw materials*

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**Eurobiotech 2013 “White and Green Biotechnology”**

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**Thursday, 10th of October 2013**

**9.00–10.00** Plenary lecture: Prof. L.A.M. (Luuk) van der Wielen, Delft University of Technology, The Netherlands, Industrial Biotechnology (tentative title) (White Biotechnology Lecture Hall)  
Chair: Stanisław Bielecki

**10.00–10.30** Coffee break

**White Biotechnology**

**Session: Bioeconomy**  
(White Biotechnology Lecture Hall)

Chair: Stanisław Bielecki

**10.30–11.00** Lech Michalczyk, Research Institute of Horticulture, Poland

*Agri-food industry - a key element of Polish bioeconomy*

**11.00–11.30** Andrzej Okruszek, Lodz University of Technology, Poland  
Biomass as a source of raw materials for the preparation of environmentally friendly fibrous polymers

**11.30–12.00** Paweł Kafarski, Wrocław University of Technology, Poland  
*Biotransformations as a tool for Biorafineries*

**12.00–12.30** Tomasz Kapela, Biotechnika  
*Bionidustry in Poland - current status, major obstacles, driving force and open opportunities*

**12.30–13.00** Patricia Osseweijer, Delft University of Technology  
*Biobased production and answer to societal challenges? The importance of sustainability and communication*

**13.00–14.00** Lunch

**14.00–15.30** Poster session

**14.30–15.30** General Meeting of Polish Federation of Biotechnology (Green Biotechnology Lecture Hall)

**Green Biotechnology**

**Session: Plant Genetic Engineering**  
(Green Biotechnology Lecture Hall)

Chair: Rafał Barański, Neal C. Stewart

**10.30–11.00** Paul Christou, University of Lleida, Spain  
*The ins and outs of multigene engineering of complex biosynthetic pathways in plants*

**11.00–11.30** Jan Szopa-Skórkowski, University of Wrocław, Poland  
*Biotechnology of flax*

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## Eurobiotech 2013 “White and Green Biotechnology”

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- 11.30–12.00** Phil Mullineaux, University of Essex, UK  
*Systems biology-led approaches to engineering environmental stress tolerance in plants*
- 12.00–12.30** Waclaw Orczyk, Acclimatization and Plant Breeding Institute, National Research Institute, Poland  
*RNAi in cereal functional genomics*
- 12.30–12.45** Monika Bojko, Monika Olchawa – Pajor, Urszula Tuleja, Paulina Kuczyńska, Wojciech Strzałka, Dariusz Latowski, Kazimierz Strzałka, Jagiellonian University, Poland  
*Expression of three diadinoxanthin de-epoxidase genes of *Pheodacylum tricornutum* in *Escherichia coli* Origami b strain*
- 12.45–13.00** Magdalena Pawełkiewicz, Cezary Kowalczyk, Paweł Osipowski, Michał Wojcieszek, Grzegorz Kojder, Katarzyna Kosik, Zbigniew Przybecki, University of Life Sciences-SGGW, Poland  
*The role of ubiquitins in cucumber (*C. sativus* L.) flower morphogenesis*

**13.00–14.00** Lunch

**14.00–15.30** Poster session

### White Biotechnology

#### Session: Bioplastics and biobased polymers (White Biotechnology Lecture Hall)

Chairs: Andrzej Kononowicz, Krzysztof Pielichowski

- 15.30–16.00** Magda Wróbel-Kwiatkowska, Jan Szopa-Skórkowski, University of Wrocław, Poland  
*A novel bioplastic fibres for tissue engineering and biodegradable packaging materials*
- 16.00–16.30** Karolina Ludwicka, Stanisław Bielecki, Lodz University of Technology, Poland  
*Bacterial nanocellulose scaffolds for regenerative medicine*
- 16.30–17.00** Coffee break
- 17.00–17.30** Barbara Klajnert – Maculewicz, University of Lodz, Poland  
*Biomedical applications of dendrimers*
- 17.30–18.00** Katarzyna Kubiak, Stanisław Bielecki, Lodz University of Technology, Poland  
*Bionanocellulose production control from molecular point of view*
- 18.00–18.30** Agnieszka Leszczyńska, Krzysztof Pielichowski, Cracow University of Technology, Poland  
*Functionalised microfibrillar cellulose for bio-based polyamide composites*



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## Eurobiotech 2013 “White and Green Biotechnology”

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### Green Biotechnology

#### Session: Animal Biotechnology in Biomedicine (Green Biotechnology Lecture Hall)

Chairs: Zdzisław Smorąg, Ryszard Słomski

- 15.30–16.00** Csaba Pribenszky, Szent Istvan University Budapest, Hungary  
*Stress preconditioning of cells for improved output in cloning, IVF and stem cell research*
- 16.00–16.30** Marlena Szalata, University of Live Sciences, Poznan  
*Large animal models in biomedical research*
- 16.30–17.00** Coffee break
- 17.00–17.45** Urszula Mazurek, Medical University of Silesia, Poland  
*The risk of viral infections in xenotransplantation and prevention strategies*
- 17.45–18.30** Marcin Samiec, National Research Institute of Animal Production, Poland  
*Novel strategies in the somatic cell cloning of mammals*
- 18.30–19.00** Małgorzata Kimsa  
*Restriction factor gene expression in normal human dermal fibroblasts after porcine endogenous retrovirus infection*

### Friday, 11th of October 2013

- 9.00–10.00** **Plenary lecture: Stanisław Karpiński, Warsaw University of Life Sciences, Poland**

#### Teaching from the Plant Kingdom; Energy, Economics and the Environment (White Biotechnology Lecture Hall)

Chair: Tomasz Twardowski

- 10.00–10.30** Coffee break

### White Biotechnology

#### Session: Pharmaceutical biotechnology (White Biotechnology Lecture Hall)

Chairs: Alicja Józkowicz, Katarzyna Kieć-Kononowicz

- 10.30–11.00** Oliver Kayser, Technical University Dortmund, Technical Biochemistry, Germany  
*Green Pharma – Synergy between biotechnology and pharmaceutical engineering*

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## Eurobiotech 2013 “White and Green Biotechnology”

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- 11.00–11.30** Anke Schiedel, Pharmazeutisches Institut, Pharmazeutische Chemie I, Universität Bonn, Germany  
*How to pick the right pocket - the where and how of ligand binding*
- 11.30–12.00** Joanna Bereta, Structural Biology Department, Faculty of Biochemistry, Biophysics and Biotechnology, Jagiellonian University, Poland  
*Monoclonal antibodies targeting angiogenesis and lymphangiogenesis in cancer therapies*
- 12.00–12.30** Janina Kamińska, Faculty of Biotechnology and Food Sciences, Technical University of Lodz, Poland  
*Biocatalytic access to chiral intermediates for  $\beta$ -adrenergic receptors antagonists*
- 12.30–13.00** Jerzy Dobrucki, Division of Cell Biophysics, Faculty of Biochemistry, Biophysics and Biotechnology, Jagiellonian University, Poland  
*New fluorescence methods of visualisation of extracellular matrix in metabolically active tissues*

### Green Biotechnology

#### Session: Animal Biotechnology in Agriculture

#### (Green Biotechnology Lecture Hall)

**Chairs: Krystyna Koziec, Arieh Gertler**

- 10.30–11.15** Arieh Gertler, The Hebrew University of Jerusalem, Israel  
*Leptin and leptin antagonists in research and biotechnology*
- 11.15–12.00** Stefan Kwiatkowski<sup>1</sup>, Karl Dawson<sup>1</sup>, Maciej Gryszel<sup>2</sup>  
Alltech Biotechnology Center, Alltech Inc. USA<sup>1</sup>, Faculty of Chemistry, Warsaw University of Technology, Poland<sup>2</sup>  
*Development of non-antibiotic treatment to prevent animal digestive tract from bacterial infections*
- 12.00–12.30** Zofia Madeja, University of Life Sciences, Poznań, Poland  
*Embryonic Cells Stem (ECS) technology in farm animals - current state of knowledge and prospects for the future*
- 12.30–13.00** Ewa Ocłowska, University of Agriculture, Poland  
*Animals as a tool for metabolic processes modeling*
- 13.00–14.00** Closing ceremony  
Chairs : Kazimierz Strzałka, Tomasz Twardowski
- 14.00–14.30** Lunch

**Posters list**

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### WHITE BIOTECHNOLOGY

#### Session 1

##### Nanotechnologies in industrial processes

###### P1.1

###### Preparation of Ag nanoparticles using plant extracts Nanotechnologies in industrial processes

Zygmunt Sadowski, Hanna Hyż, Szcępan Gorzysnik

Wroclaw University of Technology, Chemical Engineering Department

###### P1.2

###### Studies on the formation of O/W nano-emulsions, by low-energy emulsification method, suitable for cosmeceutical applications

Małgorzata Jaworska<sup>1</sup>, Elżbieta Sikora<sup>1</sup>, Michał Zielina<sup>2</sup>,  
Jan Ogonowski<sup>1</sup>

<sup>1</sup> Faculty of Chemical Engineering and Technology, Institute of Organic Chemistry and Technology, Krakow University of Technology, <sup>2</sup> Faculty of Environmental Engineering, Institute of Water Supply and Environmental Protection, Krakow University of Technology

###### P1.3

###### Influence of process parameters on properties of Nanostructured Lipid Carriers (NLC) formulation

Elwira Lasoń, Elżbieta Sikora, Jan Ogonowski

Institute of Organic Chemistry and Technology, Krakow University of Technology, Poland

###### P1.4

###### Nanometals as tool in fight against plant pathogens

Agnieszka Sobczak-Kupiec<sup>1</sup>, Dagmara Malina<sup>1</sup>, Bożena Tyliszczak<sup>2</sup>,  
Zbigniew J. Burgiel<sup>3</sup>

<sup>1</sup> Institute of Inorganic Chemistry and Technology, Krakow University of Technology, 24 Warszawska St., 31-155 Krakow, Poland, <sup>2</sup> Department of Chemistry and Technology of Polymers, Krakow University of Technology, 24 Warszawska St., 31-155 Krakow, Poland, <sup>3</sup> Department of Plant Protection, University of Agriculture in Krakow, al. 29 Listopada 54, 31-425 Krakow, Poland

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### **P1.5**

#### **Carbon aerogels based on natural starches - synthesis and characterization**

Monika Bakierska, Marcin Molenda, Małgorzata Maria Zaitz,  
Roman Dziembaj

Faculty of Chemistry, Jagiellonian University

### **P1.6**

#### **Characterization and properties of silver nanoparticles for agro-engineering applications**

Agnieszka Sobczak-Kupiec<sup>1</sup>, Katarzyna Bialik-Wąs<sup>2</sup>,  
Bożena Tylińczak<sup>2</sup>, Dagmara Malina<sup>1</sup>, Zbigniew Burgiel<sup>3</sup>

<sup>1</sup> Institute of Inorganic Chemistry and Technology, Krakow University of Technology, ul. Warszawska 24, 31-155 Krakow, Poland, <sup>2</sup> Department of Chemistry and Technology of Polymers, Krakow University of Technology, ul. Warszawska 24, 31-155 Krakow, Poland, <sup>3</sup> Department of Plant Protection, Agricultural University

### **P1.7**

#### **Silver nanoparticles as an effective biocidal factor**

Jolanta Pulit<sup>1</sup>, Marcin Banach<sup>1</sup>, Renata Szczygłowska<sup>2</sup>, Mirosław Bryk<sup>3</sup>

<sup>1</sup> Krakow University of Technology, Institute of Inorganic Chemistry and Technology, Warszawska St., 24, 31-155 Krakow, Poland, <sup>2</sup> Silesian Environmental Ph.D. Studies Centre, Central Mining Institute, Gwarków Sq., 1, 40-166 Katowice, Poland, <sup>3</sup> Implementing Company

### **P1.8**

#### **The impact of industrial nanoaerosols on the pulmonary surfactant**

Dorota Kondej<sup>1</sup>, Tomasz R. Sosnowski<sup>2</sup>

<sup>1</sup> Central Institute for Labour Protection – National Research Institute/ Department of Chemical, Aerosol and Biological Hazards/ Czerniakowska 16/ 00-701 Warsaw/ Poland, <sup>2</sup> Warsaw University of Technology/ Faculty of Chemical and Process Engineering/ Waryńskiego 1/ 00-645 Warsaw/ Poland

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### **P1.9**

#### **The impact of nanosilver addition on element ions release form light-cured dental composite and compomer into 0,9% NaCl**

Krzysztof Sokołowski<sup>1</sup>, Małgorzata Iwona Szyrkowska<sup>2</sup>, Aleksandra Pawlaczyk<sup>2</sup>, Jerzy Sokołowski<sup>3</sup>

<sup>1</sup> Department of Conservative Dentistry, Medical University of Lodz, Pomorska 251, 92-213 Lodz (Poland), <sup>2</sup> Institute of General and Ecological Chemistry, Technical University of Lodz, Zeromskiego 116, 90-924 Lodz (Poland), <sup>3</sup> Department of General Dentistry, Medical University of Lodz, Pomorska 251, 92-213 Lodz (Poland)

## **WHITE BIOTECHNOLOGY**

### **Session 2**

#### **Development of renewable energy in biotechnology**

### **P2.1**

#### **The influence of phytase addition during the enzymatic starch hydrolysis process with the use of basic amylolytic enzymes on yield and the course of alcoholic fermentation process.**

Dawid Mikulski, Grzegorz Kłosowski

Department of Biotechnology, Institute of Experimental Biology, Kazimierz Wielki University, 85-667 Bydgoszcz, ul. Chodkiewicza 51, Poland

### **P2.2**

#### **Determination of the impact of lactose supplementation of synthetic cellulolytic media on the activity of cellulase complex**

Dorota Macko, Beata Miklaszewska, Dawid Mikulski, Grzegorz Kłosowski

Department of Biotechnology, Institute of Experimental Biology, Kazimierz Wielki University

### **P2.3**

#### **Perspectives of biofuel production from cellulosic crop waste**

Dariusz Dżiga<sup>1</sup>, Dominika Jagiełło-Flasińska<sup>2</sup>

<sup>1</sup> Department of Plant Physiology and Development, Faculty of Biochemistry, Biophysics and Biotechnology, Jagiellonian University, Gronostajowa 7, Krakow, Poland, <sup>2</sup> Department of Plant Biotechnology, Faculty of Biochemistry, Biophysics and Biotechnology, Jagiellonian University, Gronostajowa 7, Krakow, Poland

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### **P2.4**

#### **Biogas generation from sewage sludge in the anaerobic digestion process**

Mariusz Małkowski, Paweł Wolski, Lidia Wolny

Institute of Environmental Engineering, Czestochowa University of Technology

### **P2.5**

#### **Zeolite nano-adsorbents for fuel ethanol dehydration**

Tomasz Tokarz

Wydział Inżynierii i Technologii Chemicznej Politechniki Krakowskiej  
Instytut Chemii i Technologii Organicznej; Katedra Technologii Organicznej i Procesów Rafineryjnych

### **P2.6**

#### **Production of butane-2,3-diol by *Bacillus licheniformis* NCIMB 8059 in batch and fed-batch cultures and its up-scaling**

Joanna Krysiak<sup>1</sup>, Ewa Gromek<sup>1</sup>, Halina Kalinowska<sup>1</sup>,  
Marianna Turkiewicz<sup>1</sup>, Aneta Białkowska<sup>1</sup>, Siegmund Lang<sup>2</sup>

<sup>1</sup> Institute of Technical Biochemistry Lodz University of Technology, <sup>2</sup> Institute for Biochemistry, Biotechnology and Bioinformatics Braunschweig University of Technology

### **P2.7**

#### **Biogas from physical modified excess sludge of pulp industry**

Mariusz Barański, Lidia Wolny, Iwona Zawieja

Institute of Environmental Engineering, Czestochowa University of Technology

### **P2.8**

#### **Polymer-enzyme catalyst systems for the hydrolysis of cellulose**

Joanna Świder<sup>1</sup>, Katarzyna Gawętek<sup>1</sup>, Ewa Witek<sup>1</sup>,  
Edyta Podstawka- Proniewicz<sup>1</sup>, Anna Konieczna-Molenda<sup>2</sup>

<sup>1</sup> Faculty of Chemistry, Jagiellonian University, Ingardena 3 Str., 30-060 Krakow, Poland, <sup>2</sup> Department of Chemistry and Physics, University of Agriculture, Balicka 122 Str., 30-149 Krakow, Poland

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### **P2.9**

#### **Effect of cellulase immobilization upon digestion of cellulose**

Katarzyna Gawętek<sup>1</sup>, Agnieszka Tąta<sup>1</sup>, Ewa Witek<sup>1</sup>,  
Edyta Podstawka-Proniewicz<sup>1</sup>, Anna Konieczna-Molenda<sup>2</sup>

<sup>1</sup> Faculty of Chemistry, Jagiellonian University, Ingardena 3 Str., 30-060 Krakow, Poland, <sup>2</sup> Department of Chemistry and Physics, University of Agriculture, Balicka 122 Str., 30-149 Krakow, Poland

### **P2.10**

#### **Application of wastes from alcohol distillation in two-step process of biohydrogen production**

Roman Zagrodnik

Faculty of Chemistry, Adam Mickiewicz University, Umultowska 89b,  
61-614 Poznan, Poland

### **P2.11**

#### **Electrochemical studies of chemically modified and native *Sinorhizobium meliloti* laccase**

Anna Pawlik, Grzegorz Janusz, Jerzy Rogalski

Maria Curie-Skłodowska University, Faculty of Biology and Biotechnology, Department of Biochemistry

### **P2.12**

#### **Micelle-mediated extraction of elderberry blossom by whey protein and naturally-derived surfactants**

Karolina Śliwa, Anna Tomasziewicz-Potępa, Elżbieta Sikora,  
Jan Ogonowski

Faculty of Chemical Engineering and Technology, Krakow University of Technology

### **P2.13**

#### **Biosynthesis of 2,3-butanediol from waste biomass by *Raoultella Planticola* CECT 843**

Mariusz Lesiecki, Adrian Czerniak

Department of Biotechnology and Food Microbiology, Poznan University of Life Sciences, Poland



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### WHITE BIOTECHNOLOGY

#### Session 3 Bioeconomy

##### P3.1

##### Isolation of bacterial strains capable of converting glycerol into succinic acid

Marcin Podleśny, Piotr Jarocki, Jakub Wyróstek, Tomasz Czernecki, Zdzisław Targoński

Department of Biotechnology, Human Nutrition and Food Commodities, University of Life Sciences in Lublin

### WHITE BIOTECHNOLOGY

#### Session 4 Bioplastics and biobased polymers

##### P4.1

##### Oxidative polymerization of lignins by laccase in water-organic solvent system

Ionita Firuta Fitigau<sup>1,4</sup>, Francisc Peter<sup>1</sup>, Carmen Gabriela Boeriu<sup>2,3</sup>

<sup>1</sup> "Politehnica" University of Timișoara, Faculty of Industrial Chemistry and Environmental Engineering, C. Telbisz 6, 300001 Timișoara, Romania, <sup>2</sup> Wageningen UR Food & Biobased Research, Bornse Weiland 9, 6708 WG Wageningen, Netherlands, <sup>3</sup> University "Aurel Vlaicu" of Arad, Department of Life Sciences, str. E. Dragoi nr 2, Arad, Romania, <sup>4</sup> National Institute of Research-Development for Electrochemistry and Condensed Matter, A. P. Podeanu 144, 300569 Timișoara, Romania

##### P4.2

##### Biocatalytic synthesis of gluconolactone and $\epsilon$ -caprolactone copolymers

Anamaria Todea<sup>1</sup>, Lajos Nagy<sup>2</sup>, Valentin Badea<sup>1</sup>, Sandor Keki<sup>2</sup>, Francisc Peter<sup>1</sup>

<sup>1</sup> University "Politehnica" of Timișoara, Faculty of Industrial Chemistry and Environmental Engineering, C. Telbisz 6, 300001 Timișoara, Romania, <sup>2</sup> Department of Applied Chemistry, University of Debrecen, H-4010 Debrecen, Hungary

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### **P4.3**

#### **New methods of poly(itaconic acid) synthesis**

Szczepan Bednarz, Diana Błażejewska, Alicja Błaszczuk,  
Aleksandra Nowak, Piotr Krzywda

Krakow University of Technology, Faculty of Chemical Engineering and  
Technology

### **P4.4**

#### **Medium engineering for 2-methylbutyl-1ol esters synthesis**

Mirosława Szczęsna-Antczak, Emilia Grabarczyk,  
Agnieszka Borowska, Jakub Szelaq, Katarzyna Chudzik,  
Magdalena Zakowicz-Siuda, Tadeusz Antczak

Institute of Technical Biochemistry, Lodz University of Technology, Ste-  
fanowskiego Str. 4/10, 90-924 Lodz, Poland

### **P4.5**

#### **An influence of water content on enzymatic transesterification**

Jakub Szelaq, Mirosława Szczęsna-Antczak, Łukasz Stańczyk,  
Małgorzata Piotrowicz-Wasiak, Tadeusz Antczak

Institute of Technical Biochemistry, Technical University of Lodz, Ste-  
fanowskiego Str. 4/10, 90-924 Lodz, Poland

### **P4.6**

#### **Synthesis of fluorescent polyesters from citric acid**

Wiktor Kasprzyk, Szczepan Bednarz, Dariusz Bogdal

Chair of Biotechnology and Physical Chemistry, Faculty of Chemical En-  
gineering and Technology, Krakow University of Technology, Warszaws-  
ka 24 St. 31-155 Krakow, Poland

### **P4.7**

#### **Application of selectively-hydrogenated rapeseed oil for modifica- tion of flexible foams**

Sylwia Dworakowska<sup>1</sup>, Dariusz Bogdal<sup>1</sup>, Federica Zaccheria<sup>2</sup>,  
Nicoletta Ravasio<sup>2</sup>

<sup>1</sup> Department of Biotechnology and Physical Chemistry, Krakow Univer-  
sity of Technology, Warszawska 24, Krakow, Poland, <sup>2</sup> CNR-Institute of  
Molecular Science and Technologies, Via Golgi 19, Milan, Italy

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### **P4.8**

#### **Microwave-enhanced chemical modification of chitosan**

Marek Sławiński, Marek Piątkowski

Chair of Biotechnology and Physical Chemistry, Krakow University of Technology, Krakow, Poland

## **WHITE BIOTECHNOLOGY**

### **Session 5**

#### **Pharmaceutical Biotechnology**

### **P5.1**

#### **The impact of immobilized metal affinity chromatography (IMAC) resins on DNA aptamer selection**

Ewa Kowalska, Filip Bartnicki, Katarzyna Pels, Wojciech Strzalka

Department of Plant Biotechnology, Faculty of Biochemistry, Biophysics and Biotechnology, Jagiellonian University, Krakow, Poland

### **P5.2**

#### **Bcl-2 family gene expression on HeLa cells treated with *Physalis peruviana* ethanol extracts**

Ozgun Çakir<sup>1</sup>, Bilgin Candar Çakir<sup>2</sup>, Murat Pekmez<sup>1</sup>, Kerem Fidan<sup>1</sup>

<sup>1</sup> Istanbul University, <sup>2</sup> Istanbul Kultur University

### **P5.3**

#### **Antibacterial and antioxidant activities of *Physalis peruviana***

Murat Pekmez<sup>1</sup>, Fatma Elif Çepni<sup>1</sup>, Bilgin Candar Çakir<sup>2</sup>, Özgür Çakir<sup>1</sup>

<sup>1</sup> Istanbul University, <sup>2</sup> Istanbul Kultur University

### **P5.4**

#### **Arbutin production via biotransformation of hydroquinone in *in vitro* cultures of *Aronia melanocarpa* (Michx.) Elliott**

Inga Kwiecień, Agnieszka Szopa, Kornelia Madej, Halina Ekiert

Chair and Department of Pharmaceutical Botany, Jagiellonian University, Collegium Medicum, 9 Medyczna Street, 30-688 Krakow, Poland

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### P5.5

#### The accumulation of phenolic acids in agitating cultures of *Ruta graveolens* L

Agnieszka Szewczyk, Marzena Surzyn, Halina Ekiert

Department of Pharmaceutical Botany, Jagiellonian University, Collegium Medicum, 9 Medyczna St., 30-688 Krakow, Poland

### P5.6

#### The influence of L-phenylalanine, methyl jasmonate and sucrose concentration on the accumulation of phenolic acids in *Exacum affine* Balf. f. shoot culture

Ewa Skrzypczak-Pietraszek, Joanna Słota

Chair and Department of Pharmaceutical Botany, Jagiellonian University, Collegium Medicum, 9 Medyczna Street, 30-688 Krakow, Poland

### P5.7

#### Biotechnology in cosmetology: Introduction of Argireline® an anti-aging peptide. Study of cellular cytotoxicity of Argireline® solution.

Marek Grosicki, Anna Cukier, Katarzyna Kieć-Kononowicz

Jagiellonian University Medical College, Faculty of Pharmacy, Department of Technology and Biotechnology of Drugs, 30-688 Krakow, Poland

### P5.8

#### Antibacterial activity of essential oils obtained from leaves and fruits of a native plant from South America, *Schinus areira*

Marta H. Alabrudzinska<sup>1</sup>, Liliana S. Celaya<sup>2</sup>, Ana C. Molina<sup>2</sup>, Carmen I. Viturro<sup>2</sup>, Silvia Moreno<sup>3</sup>

<sup>1</sup> Intercollegiate Faculty of Biotechnology, University of Gdansk and Medical University of Gdansk, Gdansk, PC 80-822, Poland, <sup>2</sup> PRONOA Laboratory, F.I., National University of Jujuy, S. S. de Jujuy PC 4600, Argentina, <sup>3</sup> Plant Biochemistry laboratory, Institute Leloir Foundation, IIBBA-CONICET. Buenos Aires, PC 1405. Argentina

### P5.9

#### Cell wall proteins of *Candida albicans* and non-*albicans Candida* species as the binders for human proteins and potential therapeutic targets.

Justyna Karkowska-Kuleta<sup>1</sup>, Sylwia Kedracka-Krok<sup>2</sup>, Karolina Seweryn<sup>1</sup>, Maria Rapala-Kozik<sup>1</sup>, Andrzej Kozik<sup>1</sup>

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<sup>1</sup> Jagiellonian University, Faculty of Biochemistry, Biophysics and Biotechnology, Department of Analytical Biochemistry, <sup>2</sup> Jagiellonian University, Faculty of Biochemistry, Biophysics and Biotechnology, Department of Physical Biochemistry

### P5.10

#### **Quercetin decreases myelosuppression and oxidative DNA damage induced by etoposide in bone marrow of rats**

Monika A. Papież

Department of Cytobiology, Faculty of Pharmacy, Jagiellonian University Medical College, Krakow, Poland

### P5.11

#### **Application of immobilized ethylbenzene dehydrogenase and whole-cell recombinant phenylethanol dehydrogenase system for synthesis of chiral alcohols**

Maciej Szaleniec<sup>1</sup>, Agnieszka Dudzik<sup>1</sup>, Mateusz Tataruch<sup>1</sup>, Wojciech Snoch<sup>1</sup>, Joanna Opalińska-Piskorz<sup>1</sup>, Jolanta Bryjak<sup>2</sup>, Małgorzata Witko<sup>1</sup>, Johann Heider<sup>3</sup>

<sup>1</sup> Jerzy Haber Institute of Catalysis and Surface Chemistry PAS, ul. Niezapomnianek 8, 30-239 Krakow, Poland, <sup>2</sup> Department of Bioinorganic Chemistry, Wrocław Technical University, Wybrzeże Wyspiańskiego 27, 50-370 Wrocław, Poland, <sup>3</sup> Laboratory of Microbial Biochemistry, Philipps-University of Marburg, Karl-von-Frisch Strasse 8, D-3504 Marburg, Germany

### P5.12

#### **Studies on sintering process of bone-derived hydroxyapatite**

Dagmara Malina, Kamila Biernat, Agnieszka Sobczak-Kupiec

Institute of Inorganic Chemistry and Technology, Krakow University of Technology, 24 Warszawska St., 31-155 Krakow, Poland

### P5.13

#### **Sugar analogs as a novel therapeutic agents against cancer**

Anna Czubatka<sup>1</sup>, Paweł Tokarz<sup>2</sup>, Zbigniew Witczak<sup>3</sup>, Tomasz Poplawski<sup>1</sup>

<sup>1</sup> Department of Molecular Genetics, University of Lodz, Lodz, 90-236, Poland, <sup>2</sup> Department of Organic Chemistry, University of Lodz, Lodz, 91-403, Poland, <sup>3</sup> Department of Pharmaceutical Sciences, Nesbitt School of Pharmacy, Wilkes University, Wilkes-Barre, PA 18766, USA

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### **P5.14**

#### **Fluorometric assay for screening the new multidrug-resistant strains of *Pseudomonas aeruginosa* with efflux pumps overexpression**

Gniewomir Latacz, Zuzanna Rowińska, Anna Matys,  
Katarzyna Kieć-Kononowicz

Department of Technology and Biotechnology of Drugs, Jagiellonian University Medical College, Krakow, Medyczna 9, 30-688 Krakow, Poland

### **P5.15**

#### **Production of triterpenoids with cell and tissue cultures**

Magdalena Malinowska, Elżbieta Sikora, Jan Ogonowski

Krakow Univeristy of Technology

### **P5.16**

#### **Determination of antioxidant activity of black tea extract**

Magdalena Malinowska, Kamil Kurleto, Grzegorz Kurowski,  
Barbara Laskowska, Elżbieta Sikora, Otmar Vogt

Krakow Univeristy of Technology

### **P5.17**

#### **Homology Modeling of Steroid C25 Dehydrogenase**

Agnieszka Rugor<sup>1</sup>, Stefan Mordarski<sup>2</sup>, Jakub Staroń<sup>2</sup>,  
Andrzej Bojarski<sup>2</sup>, Maciej Szaleniec<sup>1</sup>

<sup>1</sup> Jerzy Haber Institute of Catalysis and Surface Chemistry, PAS, Niezapominajek 8, 30-239 Krakow, Poland, <sup>2</sup> Institute of Pharmacology, PAS, Smętna 12, 31-343 Krakow, Poland

### **P5.18**

#### **Bacterial steroid C-25 dehydrogenase – a novel biocatalyst for regioselective hydroxylation of steroid compounds**

Natalia Zawada, Agnieszka Rugor, Mateusz Tataruch,  
Maciej Szaleniec, Daniel Knack

Jerzy Haber Institute of Catalysis and Surface Chemistry, PAS, Niezapominajek 8, 30-239 Krakow, Poland

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### **P5.19**

#### **Screening of porous carriers for covalent immobilization of pepsin and laccase**

Katarzyna Szałapata<sup>1</sup>, Monika Osińska-Jaroszuk<sup>1</sup>, Kamila Wlizło<sup>1</sup>, Jolanta Bryjak<sup>2</sup>, Anna Jarosz-Wilkołazka<sup>1</sup>

<sup>1</sup> Maria Curie-Skłodowska University, Department of Biochemistry, Lublin, Poland, <sup>2</sup> Wrocław University of Technology, Department of Bioorganic Chemistry, Wrocław, Poland

### **P5.20**

#### **Poly(AA-co-MMA) micro- and nanoparticles for controlled drug delivery**

Katarzyna Bialik-Wąs, Bożena Tyliszczak, Krzysztof Pielichowski

Department of Chemistry and Technology of Polymers, Krakow University of Technology, ul. Warszawska 24, 31-155 Krakow, Poland

### **P5.21**

#### **Effect of conjugated linoleic acid (CLA) on serum lipid profile and markers of liver function in rats fed different dietary fat sources**

Magdalena Franczyk-Żarów<sup>1</sup>, Edyta Maślak<sup>2</sup>, Renata B. Kostogrys<sup>1</sup>

<sup>1</sup> Department of Human Nutrition, Faculty of Food Technology, Agricultural University of Krakow, ul. Balicka 122, 30-149 Krakow, Poland, <sup>2</sup> Jagiellonian Centre for Experimental Therapeutics (JCET), Jagiellonian University, Bobrzyńskiego 14, Krakow, Poland

### **P5.22**

#### **Novel class of primosomal protein B from *Clostridium thermocellum***

Marta Śpibida, Marta Marszałkowska, Marcin Olszewski

Gdansk University of Technology, Department of Microbiology, ul. Narutowicza 11/12, 80-233 Gdansk, Poland

### **P5.23**

#### **The antioxidant quercetin modifies etoposide action in HL-60 cells**

Monika Papież

Department of Cytobiology, Faculty of Pharmacy, Jagiellonian University Medical College, Krakow, Poland

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### P5.24

#### ***Salvia lavandulifolia* from Spain: aromatic profile by enantioselective gas chromatography-mass spectrometry**

Ana Belen Cutillas<sup>5</sup>, Alejandro Carrasco<sup>1</sup>, Vanessa Ortiz<sup>1</sup>,  
Ramiro Martinez-Gutierrez<sup>2</sup>, Francisco Javier Martinez<sup>4</sup>,  
Mariano Sanchez<sup>5</sup>, Virginia Tomas<sup>2</sup>, Jose Tudela<sup>1</sup>

<sup>1</sup> GENZ-Grupo de Investigacion Enzimologia ([www.um.es/genz](http://www.um.es/genz)), Departamento de Bioquímica y Biología Molecular-A, Campus de Excelencia Internacional Regional Campus Mare Nostrum, Universidad de Murcia, Murcia, Spain, <sup>2</sup> Departamento de Química Analítica, Universidad de Murcia, <sup>3</sup> NOVOZYMES SPAIN S.A. ([www.novozymes.com](http://www.novozymes.com)), <sup>4</sup> Esencias Martinez-Lozano S.A. ([www.esenciaslozano.com](http://www.esenciaslozano.com)), <sup>5</sup> Europermanent S.L.

### P5.25

#### **Permeation of iodine from iodine-enriched yeast through porcine intestine**

Florian Ryszka<sup>1</sup>, Barbara Dolińska<sup>1,2</sup>, Michał Zieliński<sup>1,2</sup>,  
Dagmara Chyra<sup>1</sup>, Zbigniew Dobrzański<sup>3</sup>

<sup>1</sup> Pharmaceutical Research and Production Plant "Biochefa", Sosnowiec, Poland, <sup>2</sup> Department of Applied Pharmacy and Drug Technology, Medical University of Silesia, Sosnowiec, Poland, <sup>3</sup> Department of Animal Hygiene and Animal Welfare, Wrocław University of Environmental and Life Sciences, Wrocław, Poland

### P5.26

#### **Novel class of primosomal protein B from *Clostridium thermocellum***

Marta Śpibida, Marta Marszałkowska, Marcin Olszewski

Gdansk University of Technology, Department of Microbiology, ul. Narutowicza 11/12, 80-233 Gdansk, Poland

### P5.27

#### **A novel DNA polymerase from hyperthermophilic bacterium *Thermovibrio ammonificans*: gene cloning, expression, and characterization**

Marta Marszałkowska, Sandra Zakrzewska, Marta Spibida,  
Marcin Olszewski

Department of Microbiology, Faculty of Chemistry, Gdansk University of Technology, ul. Narutowicza 11/12, 80-233 Gdansk, Poland



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### P5.28

#### Screening of carriers for lipase immobilization suitable for reactions in water, biphasic and pure organic solvent systems

Zofia Hrydziusko<sup>1</sup>, Agnieszka Dmytryk<sup>1</sup>, Paulina Majewska<sup>1</sup>, Katarzyna Szymańska<sup>2</sup>, Jolanta Liesiene<sup>3</sup>, Jolanta Bryjak<sup>1</sup>

<sup>1</sup> Wrocław University of Technology, Faculty of Chemistry, Department of Bioorganic Chemistry, Poland, <sup>2</sup> Silesian University of Technology, Department of Chemical Engineering, Poland, <sup>3</sup> Kaunas University of Technology, Faculty of Chemical Technology, Lithuania

### P5.29

#### The effect of new hydantoin derivatives on the increase of ciprofloxacin efficacy in drug-resistant *E. coli*

Anna Matys, Ewa Otrębska, Jakub Mazurkiewicz, Daria Studnicka, Beata Mastek, Jadwiga Handzlik, Katarzyna Kieć-Kononowicz

Department of Technology and Biotechnology of Drugs, Jagiellonian University, Collegium Medicum, Faculty of Pharmacy, Krakow, Poland

### P5.30

#### Laccase activity and stability in the presence of menthol-based ionic liquids

Joanna Feder-Kubis<sup>1</sup>, Jolanta Bryjak<sup>2</sup>

<sup>1</sup> Wrocław University of Technology, Faculty of Chemistry, Department of Chemical Engineering, <sup>2</sup> Wrocław University of Technology, Faculty of Chemistry, Department of Bioorganic Chemistry

### P5.31

#### Antiradical capacity of fruits of Polish raspberry and blackberry cultivars – an electron paramagnetic resonance spectrometry study

Anna Kostecka-Gugała, Aleksandra Mech-Nowak, Paweł Kaszycki

Department of Biochemistry, Institute of Plant Biology and Biotechnology, Faculty of Horticulture, University of Agriculture in Krakow, al. 29 Listopada 54, 31-425 Krakow, Poland

### P5.32

#### Development of novel cell line, expressing human histamine H<sub>4</sub> receptor and its use in affinity testing of potent receptor ligands.

Tadeusz Karcz, Katarzyna Kieć-Kononowicz

Department of Technology and Biotechnology of Drugs, Jagiellonian University Medical College, Krakow, Poland

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### **P5.33**

#### **The effect of egg yolk lipids enriched with CLA on cytotoxicity of human melanoma cell line WM793.**

Dominik Domagała<sup>1</sup>, Aneta Koronowicz<sup>1</sup>, Jarosław Oczkowicz<sup>1</sup>,  
Elżbieta Sikora<sup>1</sup>, Piotr Laidler<sup>1</sup>, Teresa Leszczyńska<sup>1</sup>

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## **GREEN BIOTECHNOLOGY**

### **Session 6**

#### **Plant Molecular Breeding**

### **P6.1**

#### **New sources of phenolic compounds and anthocyanins for biotechnology**

Nijolė Anisimovienė<sup>1</sup>, Jurga Jankauskienė<sup>1</sup>, Milda Jodinskienė<sup>1</sup>,  
Vidmantas Bendokas<sup>2</sup>, Vidmantas Stanys<sup>2</sup>, Tadeušas Šikšnianas<sup>2</sup>

<sup>1</sup> Institute of Botany of Nature Research Centre, <sup>2</sup> Institute of Horticulture, Lithuanian Research Centre for Agriculture and Forestry

### **P6.2**

#### **Selection efficiency of converted DArT markers in spring barley breeding for drought tolerance**

Magdalena Wójcik-Jagła<sup>1</sup>, Anna Fiust<sup>1</sup>, Marcin Rapacz<sup>1</sup>,  
Mirosław Tyrka<sup>2</sup>

<sup>1</sup> Department of Plant Physiology, University of Agriculture in Krakow,  
<sup>2</sup> Department of Biochemistry and Biotechnology, Rzeszow University of Technology

### **P6.3**

#### **Studies on micropropagation of Polish garlic (*Allium sativum* L.) varieties**

Alicja Chuda

University of Agriculture in Krakow, Faculty of Horticulture, Institute of Plant Biology and Biotechnology, Department of Genetics, Plant Breeding and Seed Science, Al. 29 Listopada 54, 31-425 Krakow, Poland

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### **P6.4**

#### **Analysis of mitochondrial transcripts associated with cytoplasmic male-sterility in cauliflower (*Brassica oleracea* L. var. *botrytis*)**

Gabriela Machaj, Marek Szklarczyk

Department of Genetics, Plant Breeding and Seed Science, University of Agriculture in Krakow, Al. 29 Listopada 54, Krakow

### **P6.5**

#### **The role of nitric oxide in calamine plant species response to lead stress during *in vitro* culture**

Ewa Muszyńska, Ewa Hanus-Fajerska

Department of Botany and Plant Physiology, University of Agriculture in Krakow

### **P6.6**

#### **Evaluation of the nucleotide sequences of DNA rearrangements in wheat-rye hybrids using ISSR-PCR, IRAP-PCR, REMAP-PCR and "ITAP-PCR"**

Izabela Szućko, Stanisława Maria Rogalska

Chair of Cell Biology, University of Szczecin, Wąska 13, PL-70415 Szczecin, Poland

### **P6.7**

#### **Intergenic Spacer length variability in cultivated, weedy and wild rye species**

Lidia Skuza, Ewa Filip, Izabela Szućko

Chair of Cell Biology, University of Szczecin, Wąska 13, PL-70415 Szczecin, Poland

### **P6.8**

#### **Intra-population genetic diversity of cultivated carrot (*Daucus carota* L.) assessed by analysis of microsatellite markers**

Anna Maksylewicz, Rafal Baranski

University of Agriculture in Krakow, Institute of Plant Biology and Biotechnology, Unit of Genetics, Plant Breeding and Seed Science Al. 29 Listopada 54, 31-425 Krakow, Poland

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### **P6.9**

#### **Detection of *Plasmodiophora brassicae* in soil by PCR method**

Anna Czubatka, Jozef Robak, Agnieszka Czajka,  
Wojciech Szczechura, Mirosława Staniaszek

Research Institute of Horticulture, ul. Konstytucji 3 Maja 1/3, 96-100  
Skierniewice, Poland

### **P6.10**

#### **Chromosomal distribution of repetitive DNA sequences and karyotyping in *Cucumis metuliferus***

Kohei Yagi, Ewa Siedlecka, Zbigniew Przybecki, Stefan Malepszy,  
Wojciech Płqder

Department of Plant Genetics, Breeding and Biotechnology, Faculty of  
Horticulture and Landscape Architecture, Warsaw University of Life Sci-  
ences - SGGW, Nowoursynowska, Warsaw, Poland

### **P6.11**

#### **The effect of temperature on growth, and several parameters of *Pheodactylum tricornutum* in batch cultures**

Monika Bojko<sup>1</sup>, Klaudia Brzostowska<sup>1</sup>, Paulina Kuczyńska<sup>1</sup>,  
Dariusz Latowski<sup>1</sup>, Monika Olchawa-Pajor<sup>1</sup>, Weronika Krzeszowiec<sup>2</sup>,  
Kazimierz Strzałka<sup>1</sup>

<sup>1</sup> Department of Plant Physiology and Biochemistry, Faculty of Biochem-  
istry, Biophysics and Biotechnology, Jagiellonian University, Gronosta-  
jowa 7, 30-387 Krakow, Poland, <sup>2</sup> Department of Plant Biotechnology,  
Faculty of Biochemistry, Biophysics and Biotechnology, Jagiellonian Uni-  
versity, Gronostajowa 7, 30-387 Krakow, Poland

### **P6.12**

#### **DNA markers as a tool for selection of tomato plants with resistance to *Fusarium oxysporum* f.sp. *radicis-lycopersici***

Mirosława Staniaszek, Wojciech Szczechura, Elżbieta Kozik,  
Marzena Nowakowska, Hanna Habdas

Research Institute of Horticulture, Department of Genetic Breeding and  
Biotechnology Vegetable Plants, 96-100 Skierniewice, Poland

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### **P6.13**

**Effect of different conditions for cell immobilization and phyto-sulfonine supplementation on somatic embryogenesis in protoplast cultures of *Daucus* species**

Katarzyna Maćkowska, Ewa Grzebelus

University of Agriculture in Krakow, Dept. of Genetics, Plant Breeding and Seed Science

### **P6.14**

**Characterization of wheat mRNAs expressed during grain development**

Magdalena Simlat, Michał Nowak, Patrycja Wieczorek, Maria Moś

Department of Plant Breeding and Seed Science, University of Agriculture, Łobzowska 24, 31-140 Krakow, Poland

### **P6.15**

**Molecular and cytogenetic verification of the F1 and F2 hybrids between *Betula nana* and *Betula utilis* 'Doorenbos'**

Małgorzata Czernicka<sup>1</sup>, Jarosław Pławiak<sup>1</sup>, Piotr Muras<sup>2</sup>

<sup>1</sup> Department of Genetics, Plant Breeding and Seed Science, University of Agriculture in Krakow, Al. 29 Listopada 54, 31-425 Krakow, Poland,

<sup>2</sup> Department of Dendrology and Landscape Architecture, University of Agriculture in Krakow, Al. 29 Listopada 54, 31-425 Krakow, Poland

## GREEN BIOTECHNOLOGY

### **Session 7**

#### **Environmental Biotechnology**

### **P7.1**

**The influence of phytase addition during the enzymatic starch hydrolysis process with the use of basic amylolytic enzymes on yield and the course of alcoholic fermentation process.**

Dawid Mikulski, Grzegorz Kłosowski

Department of Biotechnology, Institute of Experimental Biology, Kazimierz Wielki University, 85-667 Bydgoszcz, ul. Chodkiewicza 51, Poland

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### **P7.2**

**The Kinetic reduction of Cr(VI) by yeast cells of *Saccharomyces cerevisiae*, *Phaffia rhodozyma* and their protoplasts.**

Jarosław Chwastowski, Henryk Kołoczek

Krakow University of Technology, Department of Inorganic Technology and Environmental Biotechnology

### **P7.3**

**The citric acid-modified enzyme-resistant dextrin from potato starch as potential prebiotic.**

Katarzyna Śliżewska<sup>1</sup>, Renata Barczyńska<sup>2</sup>, Janusz Kapuśniak<sup>2</sup>

<sup>1</sup> Institute of Fermentation Technology and Microbiology, Faculty of Biotechnology and Food Sciences, Technical University of Lodz, 171173 Wolczanska Street, 90-924 Lodz, Poland, <sup>2</sup> Institute of Chemistry, Environmental Protection and Biotechnology, Jan Dlugosz University, 13/15 Armii Krajowej Avenue, 42-200 Czestochowa, Poland

### **P7.4**

**Comparison of ARDRA and ARISA fingerprinting patterns analysis as a methods in early bulking activated sludge symptoms detection**

Dagna Sołtysik, Daria Matczyńska, Ilona Bednarek

Department of Biotechnology and Genetic Engineering, Medical University of Silesia in Katowice, Narczyków 1, 41-200 Sosnowiec, Poland

### **P7.5**

**Phytofiltration laboratory prototype of uranium-contaminated waters**

Paulo Favas<sup>1,3</sup>, João Pratas<sup>2,3</sup>

<sup>1</sup> School of Life Sciences and the Environment, University of Trás-os-Montes e Alto Douro, Portugal, <sup>2</sup> Department of Earth Sciences, Faculty of Sciences and Technology, University of Coimbra, Portugal, <sup>3</sup> IMAR-CMA Marine and Environmental Research Centre, University of Coimbra, Portugal

### **P7.6**

**Biological activity of lipopolysaccharide from cyanobacterium *Synechococcus* PCC 7002**

Agnieszka Rombel-Bryzek<sup>1</sup>, Anna Krop-Wątopek<sup>1,2</sup>

<sup>1</sup> Department of Biotechnology and Molecular Biology, University of Opole, Opole, Poland, <sup>2</sup> Ludwik Hirszfeld Institute of Immunology and Experimental Therapy, Polish Academy of Sciences, Wrocław, Poland

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### **P7.7**

#### **Influence of imidazolium ionic liquids on activated sludge process**

Dorota Gendaszewska<sup>1</sup>, Ewa Liwarska-Bizukojć<sup>1</sup>, Cedric Maton<sup>2</sup>,  
Chris V. Stevens<sup>2</sup>

<sup>1</sup> Technical University of Lodz, Institute of Fermentation Technology and Microbiology, Lodz, Poland, <sup>2</sup> Ghent University, Department of Sustainable Chemistry and Technology, Ghent, Belgium

### **P7.8**

#### **Treatment of fibreboard wastewater by combined ozone, membrane bioreactor and activated carbon process**

Dorota Krzemińska, Magdalena Madeła, Ewa Neczaj

Czestochowa University of Technology, Institute of Environmental Engineering, Brzeznicza 60a, 42-200 Czestochowa, Poland

### **P7.9**

#### **Treatment of fibreboard wastewater by combined fenton's process, membrane bioreactor and activated carbon process**

Dorota Krzemińska, Magdalena Madeła, Ewa Neczaj

Czestochowa University of Technology, Institute of Environmental Engineering, Brzeznicza 60a, 42-200 Czestochowa, Poland

### **P7.10**

#### **Alga *Spirogyra* sp. – biosensor of surface water contamination with heavy metals**

Małgorzata Rajfur<sup>1</sup>, Małgorzata Anna Józwiak<sup>2</sup>, Andrzej Kłos<sup>1</sup>

<sup>1</sup> Chair of Biotechnology and Molecular Biology, Opole University, ul. kard. B. Kominka 6, 45-032 Opole, Poland, phone +48 77 401 60 42, fax: +48 77 401 60 50, e-mail: mrajfur@o2.pl, <sup>2</sup> Department of Environment Protection and Modelling of the Jan Kochanowski University, ul. Świętokrzyska 15, 25-406 Kielce, Poland, phone +48 41 349 64 34, fax +48 41 349 64 18

### **P7.11**

#### **Kinetics and equilibria of heavy metal sorption by aqueous plants *Elodea canadensis* L. and *Myriophyllum spicatum* L.**

Paweł Krems, Dominik Jerz, Małgorzata Rajfur, Andrzej Kłos

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### **P7.12**

#### **Heavy metal sorption by moss *Pleurozium shreberi* and lichen *Hypogymnia physodes***

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Chair of Biotechnology and Molecular Biology, Opole University, ul. kard. B. Kominka 6, 45-032 Opole, Poland, phone +48 77 401 60 42, fax: +48 77 401 60 50,

### **P7.13**

#### **Preparative scale production of immobilized lipase preparations for continuous bioconversion processes**

Lukasz Stanczyk, Katarzyna Struszczyk-Swita, Mirosława Szczesna-Antczak, Tadeusz Antczak

Institute of Technical Biochemistry, Faculty of Biotechnology and Food Sciences Lodz University of Technology, Stefanowskiego 4/10, 90-924 Lodz, Poland

### **P7.14**

#### **Changes in dynamics of ascorbate-glutathione metabolism in response to trace metal stress in *Pisum sativum***

Aneta Piechalak<sup>1</sup>, Arleta Malecka<sup>1</sup>, Agnieszka Kutrowska<sup>1</sup>, Anetta Hanc<sup>2</sup>, Danuta Baralkiewicz<sup>2</sup>, Barbara Tomaszewska<sup>1</sup>

<sup>1</sup> Department of Biochemistry, Faculty of Biology, Adam Mickiewicz University, Umultowska 89, 61-614 Poznan, Poland, <sup>2</sup> Department of Trace Element Analysis by Spectroscopy Method, Faculty of Chemistry, Adam Mickiewicz University, Umultowska 90, 61-614 Poznan, Poland

### **P7.15**

#### **Biological denitrification of wastewater: Metabolic activity in a microbial consortium**

Agnieszka Piotrowska-Cyplik<sup>1</sup>, Wojciech Juzwa<sup>2</sup>, Zuzanna Szczepaniak<sup>1</sup>, Justyna Staninska<sup>2</sup>, Jakub Czarny<sup>3</sup>, Roman Marecik<sup>2</sup>

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### **P7.16**

#### **Influence of radical reactions on the kinetics of PAH biodegradation in aqueous media**

Justyna Staninska<sup>1</sup>, Zuzanna Szczepaniak<sup>2</sup>, Paweł Cyplik<sup>1</sup>

<sup>1</sup> Department of Biotechnology and Food Microbiology, Poznan University of Life Sciences, Wojska Polskiego 48, 60-627 Poznan, Poland, <sup>2</sup> Institute of Food Technology of Plant Origin, Poznan University of Life Sciences, Wojska Polskiego 31, 60-624 Poznan, Poland

### **P7.17**

#### **Different patterns of SOD generation and scavenging in barley SSD lines during drought**

Renata Bączek-Kwinta<sup>1</sup>, Małgorzata Borek<sup>2</sup>, Janusz Kościelniak<sup>3</sup>, Katarzyna Żmuda<sup>4</sup>

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### **P7.18**

#### **Influence of additional carbon sources on pentachlorophenol transformation**

Magdalena Kurek, Edyta Burdzik, Joanna Surmacz-Górska

Faculty of Energy and Environmental Engineering, The Silesian University of Technology, Konarskiego 18A, 44-100 Gliwice, Poland

### **P7.19**

#### **The influence of bioaugmentation and biosurfactant addition on bioremediation efficiency of diesel-oil contaminated soil: feasibility during field studies**

Alicja Szulc, Daria Pęziak, Aleksandra Piotrowska, Marta Woźniak, Mateusz Sydow, Łukasz Ławniczak, Anna Parus, Łukasz Chrzanowski

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### P7.20

#### Contributions of rhamnolipids to natural or induced bioremediation

Alicja Szulc<sup>1</sup>, Marta Woźniak<sup>1</sup>, Mateusz Sydow<sup>1</sup>, Piotr Lisiecki<sup>1</sup>,  
Grzegorz Framski<sup>2</sup>, Roman Marecik<sup>3</sup>, Kamila Myszka<sup>3</sup>,  
Łukasz Chrzanowski<sup>1</sup>

<sup>1</sup> Institute of Chemical Technology and Engineering, Poznan University of Technology, Poznan, Poland, <sup>2</sup> Institute of Bioorganic Chemistry, Polish Academy of Sciences, Poznan, Poland, <sup>3</sup> Department of Biotechnology and Food Microbiology, University of Life Sciences in Poznan, Poznan, Poland

### P7.21

#### Biodegradation of ionic liquids by microbial consortia in aqueous media

Autorzy: Wojtera-Kwiczor<sup>3</sup>, Anna Gielnik<sup>3</sup>, Łukasz Ławniczak<sup>1</sup>, Łukasz Chrzanowski<sup>1</sup>

<sup>1</sup> Institute of Chemical Technology and Engineering, Poznan University of Technology, Poznan, Poland, <sup>2</sup> Institute of Chemistry, Poznan University of Technology, Poznan, Poland, <sup>3</sup> Institute of Molecular Biology and Biotechnology, Adam Mickiewicz University in Poznan, Poznan, Poland

### P7.22

#### Influence of 1-alkoxymethyl-2-methyl-5-hydroxypyridinium chloride homologues on biodegradation of diesel fuel by a microbial consortium

Jakub Idkowiak<sup>2</sup>, Bogdan Wyrwas<sup>2</sup>, Agnieszka Zgoła-Grześkowiak<sup>2</sup>,  
Anna Syguda<sup>1</sup>, Joanna Wojtera-Kwiczor<sup>3</sup>, Anna Gielnik<sup>3</sup>,  
Łukasz Ławniczak<sup>1</sup>, Łukasz Chrzanowski<sup>1</sup>

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### P7.23

#### Biodegradation of diesel/biodiesel blends in sandy soil

Piotr Lisiecki<sup>1</sup>, Daria Pęziak<sup>1</sup>, Aleksandra Piotrowska<sup>1</sup>, Łukasz Ławniczak<sup>1</sup>, Anna Parus<sup>1</sup>, Grzegorz Framski<sup>2</sup>, Jacek Staniewski<sup>1</sup>,  
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### **P7.24**

#### **The influence of biodiesel on the biodegradation of hydrocarbons in aqueous microcosms**

Piotr Lisiecki<sup>1</sup>, Marta Woźniak<sup>1</sup>, Mateusz Sydow<sup>1</sup>, Anna Parus<sup>1</sup>,  
Joanna Wojtera-Kwiczor<sup>2</sup>, Roman Marecik<sup>3</sup>, Kamila Myszk<sup>3</sup>,  
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### **P7.25**

#### **Preferential degradation of Triton X-100 and polyethylene glycols during biodegradation of diesel fuel**

Łukasz Ławniczak<sup>1</sup>, Daria Pęziak<sup>1</sup>, Aleksandra Piotrowska<sup>1</sup>,  
Marta Woźniak<sup>1</sup>, Mateusz Sydow<sup>1</sup>, Alicja Szulc<sup>1</sup>, Bogdan Wyrwas<sup>2</sup>,  
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### **P7.26**

#### **Biological treatment of spent metalworking fluids by non-autochthonous bacterial consortia**

Łukasz Ławniczak<sup>1</sup>, Daria Pęziak<sup>1</sup>, Aleksandra Piotrowska<sup>1</sup>,  
Marta Woźniak<sup>1</sup>, Mateusz Sydow<sup>1</sup>, Alicja Szulc<sup>1</sup>, Roman Marecik<sup>2</sup>,  
Łukasz Chrzanowski<sup>1</sup>

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### **P7.27**

#### **Bioavailability of hydrocarbons to bacterial consortia during Triton X-100-mediated biodegradation in aqueous media**

S Daria Pęziak<sup>1</sup>, Aleksandra Piotrowska<sup>1</sup>, Marta Woźniak<sup>1</sup>,  
Mateusz Sydow<sup>1</sup>, Alicja Szulc<sup>1</sup>, Jakub Idkowiak<sup>2</sup>, Bogdan Wyrwas<sup>2</sup>,  
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### P7.28

#### **Rhamnolipids increase biodegradation of diesel oil in the presence of chlorophenols**

Daria Pęziak<sup>1</sup>, Aleksandra Piotrowska<sup>1</sup>, Grzegorz Framski<sup>2</sup>,  
Bogdan Wyrwas<sup>3</sup>, Roman Marecik<sup>4</sup>, Kamila Myszka<sup>4</sup>,  
Agnieszka Piotrowska-Cyplik<sup>5</sup>, Łukasz Chrzanowski<sup>1</sup>

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### P7.29

#### **Simultaneous degradation of phenol and alkanes by unconventional yeast strains**

Aleksandra Piotrowska<sup>1</sup>, Daria Pęziak<sup>1</sup>, Marta Woźniak<sup>1</sup>,  
Mateusz Sydow<sup>1</sup>, Alicja Szulc<sup>1</sup>, Jakub Idkowiak<sup>2</sup>, Bogdan Wyrwas<sup>2</sup>,  
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<sup>1</sup> Institute of Chemical Technology and Engineering, Poznan University of Technology, Poznan, Poland, <sup>2</sup> Institute of Chemistry, Poznan University of Technology, Poznan, Poland

### P7.30

#### **Biodegradation of Triton X-100 by a bacterial community isolated from activated sludge**

Aleksandra Piotrowska<sup>1</sup>, Daria Pęziak<sup>1</sup>, Marta Woźniak<sup>1</sup>,  
Mateusz Sydow<sup>1</sup>, Grzegorz Framski<sup>2</sup>, Bogdan Wyrwas<sup>3</sup>,  
Agnieszka Zgoła-Grześkowiak<sup>3</sup>, Łukasz Chrzanowski<sup>1</sup>

<sup>1</sup> Institute of Chemical Technology and Engineering, Poznan University of Technology, Poznan, Poland, <sup>2</sup> Institute of Bioorganic Chemistry, Polish Academy of Sciences, Poznan, Poland, <sup>3</sup> Institute of Chemistry, Poznan University of Technology, Poznan, Poland

### P7.31

#### **Biodegradation of diesel and biodiesel fuels under various aeration conditions**

Mateusz Sydow<sup>1</sup>, Daria Pęziak<sup>1</sup>, Aleksandra Piotrowska<sup>1</sup>,  
Marta Woźniak<sup>1</sup>, Piotr Lisiecki<sup>1</sup>, Łukasz Ławniczak<sup>1</sup>, Roman Marecik<sup>2</sup>,  
Łukasz Chrzanowski<sup>1</sup>

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### P7.32

#### **Biodegradation of rhamnolipids and its effect on bacterial community composition during diesel oil degradation**

Marta Woźniak<sup>1</sup>, Mateusz Sydow<sup>1</sup>, Alicja Szulc<sup>1</sup>, Piotr Lisiecki<sup>1</sup>, Anna Parus<sup>1</sup>, Katarzyna Mucha<sup>2</sup>, Roman Marecik<sup>3</sup>, Łukasz Chrzanowski<sup>1</sup>

<sup>1</sup> Institute of Chemical Technology and Engineering, Poznan University of Technology, Poznan, Poland, <sup>2</sup> Faculty of Materials Science, Technology and Design, Kazimierz Pulaski University of Technology and Humanities in Radom, Radom, Poland, <sup>3</sup> Department of Biotechnology and Food Microbiology, University of Life Sciences in Poznan, Poznan, Poland

### P7.33

#### **Environmental fate of selected ionic liquids introduced into terrestrial microcosms**

Łukasz Chrzanowski<sup>1</sup>, Daria Pęziak<sup>1</sup>, Aleksandra Piotrowska<sup>1</sup>, Bogdan Wyrwas<sup>2</sup>, Agnieszka Zgoła-Grześkowiak<sup>2</sup>, Anna Syguda<sup>1</sup>, Joanna Wojtera-Kwiczor<sup>3</sup>, Łukasz Ławniczak<sup>1</sup>

<sup>1</sup> Institute of Chemical Technology and Engineering, Poznan University of Technology, Poznan, Poland, <sup>2</sup> Institute of Chemistry, Poznan University of Technology, Poznan, Poland, <sup>3</sup> Institute of Molecular Biology and Biotechnology, Adam Mickiewicz University in Poznan, Poznan, Poland Science Centre

### P7.34

#### **Phytotoxic effect of rhamnolipids supplementation during biodegradation of diesel oil in soil**

Anna Parus<sup>1</sup>, Marta Woźniak<sup>1</sup>, Mateusz Sydow<sup>1</sup>, Alicja Szulc<sup>1</sup>, Katarzyna Mucha<sup>2</sup>, Joanna Wojtera-Kwiczor<sup>3</sup>, Anna Gielnik<sup>3</sup>, Łukasz Chrzanowski<sup>1</sup>

<sup>1</sup> Institute of Chemical Technology and Engineering, Poznan University of Technology, Poznan, Poland, <sup>2</sup> Faculty of Materials Science, Technology and Design, Kazimierz Pulaski University of Technology and Humanities in Radom, Radom, Poland, <sup>3</sup> Institute of Molecular Biology and Biotechnology, Adam Mickiewicz University in Poznan, Poznan, Poland

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### **P7.35**

#### **Removal of atrazine in the presence of wetland plant species**

Anna Parus<sup>1</sup>, Daria Pęziak<sup>1</sup>, Aleksandra Piotrowska<sup>1</sup>, Alicja Szulc<sup>1</sup>,  
Łukasz Ławniczak<sup>1</sup>, Joanna Wojtera-Kwiczor<sup>2</sup>, Roman Marecik<sup>3</sup>,  
Łukasz Chrzanowski<sup>1</sup>

<sup>1</sup> Institute of Chemical Technology and Engineering, Poznan University of Technology, Poznan, Poland, <sup>2</sup> Institute of Molecular Biology and Biotechnology, Adam Mickiewicz University in Poznan, Poznan, Poland, <sup>3</sup> Department of Biotechnology and Food Microbiology, University of Life Sciences in Poznan, Poznan, Poland

### **P7.36**

#### **Utilisation of betaine in vinasse stillage by a mixed culture of aerobic bacteria under non-controlled pH**

Agnieszka Ryznar-Luty, Edmund Cibis, Małgorzata Krzywonos

Wroclaw University of Economics, Department of Bioprocess Engineering

### **P7.37**

#### **Bacterial changeability monitoring of activated sludge bacterial communities in SBR bioreactors treating reject water with PCR-DGGE**

Aleksandra Ziemińska, Grzegorz Cema, Anna Meresta,  
Agata Karło, Lesław Płonka

<sup>1</sup> The Silesian University of Technology, Faculty of Environmental Engineering and Energy, Environmental Biotechnology Department, Akademicka 2, 44-100 Gliwice, Poland

### **P7.38**

#### **Semiquantitative ICP-MS analysis as a tool in the study of new hyperaccumulators**

Karina Krzciuk

Geochemistry and the Environment Div., Institute of Chemistry, Jan Kochanowski University, 15G Świętokrzyska St, 25–406 Kielce, Poland

### **P7.39**

#### **Supporting the process of biosorption**

Paulina Olesiak, Longina Stępnik

Politechnika Częstochowska, Wydział Inżynierii Środowiska i Biotechnologii, Instytut Inżynierii Środowiska

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### **P7.40**

#### **Effect of tannic acid on *Acidithiobacillus ferrooxidans* biofilm formed on the concrete**

Weronika Dec, Beata Cwalina, Paweł Stachura, Joanna Michalska

Silesian University of Technology

### **P7.41**

#### **Textile dyes synthesis by alkaline laccase from soil-dwelling fungus *Rhizoctonia praticola***

Kamila Wlizio, Jolanta Polak, Anna Jarosz-Wilkotazka

Maria Curie-Skłodowska University, Department of Biochemistry, Lublin, Poland

### **P7.42**

#### **Immobilization of cellobiose dehydrogenase from *Cerrena unicolor* to silica beads supports**

Justyna Sulej, Monika Osińska-Jaroszuk, Jerzy Rogalski

Department of Biochemistry, Maria Curie-Skłodowska University, Akademicka 19 St., 20-033 Lublin, Poland

### **P7.43**

#### **The use of *Miscanthus giganteus* and *Phalaris arundinacea* in the process of phytoremediation of soils**

Karolina Rosikoń, Małgorzata Kacprzak

Czestochowa University of Technology, Institute of Environmental Engineering, Brzeznicza 60a, 42-200 Czestochowa, Poland

### **P7.44**

#### **Identification of lipid derivatives in HepG2 cells.**

Joanna Gdula-Argasinska<sup>1</sup>, Aneta Garbacik<sup>2</sup>,  
Małgorzata Tyszka-Czochara<sup>1</sup>, Michał Wozniakiewicz<sup>2</sup>

<sup>1</sup> Jagiellonian University Medical College Faculty of Pharmacy Department of Radioligands, <sup>2</sup> Jagiellonian University Faculty of Chemistry Laboratory for Forensic Chemistry

### **P7.45**

#### **Removal heavy metals from wastewaters by yeast biomass.**

Sławomir Wierzbą<sup>1</sup>, Adam Latała<sup>1</sup>

Opole University, Chair of Biotechnology and Molecular Biology

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### **P7.46**

**Bacillus spp. and their metabolites present ecofriendly alternative to synthetic chemicals for plant growth enhancement in many different applications**

Katarzyna Grata, Małgorzata Nabrdalik

Department of Biotechnology and Molecular Biology, University of Opole, Opole, Poland

### **P7.47**

**Traditional methods of plant protection employing chemical substances may be replaced with a biological alternative based on non-pathogenic microorganisms**

Małgorzata Nabrdalik, Katarzyna Grata

Department of Biotechnology and Molecular Biology, University of Opole, Opole, Poland

### **P7.48**

**Isolation of biosurfactant producing strains from environmental samples**

Marta Woźniak<sup>1</sup>, Kamila Myszk<sup>2</sup>, Mateusz Sydow<sup>1</sup>, Alicja Szulc<sup>1</sup>, Łukasz Ławniczak<sup>1</sup>, Aleksandra Piotrowska<sup>1</sup>, Daria Pęziak<sup>1</sup>, Anna Parus<sup>1</sup>, Łukasz Chrzanowski<sup>1</sup>

<sup>1</sup> Institute of Chemical Technology and Engineering, Poznan University of Technology, Poznan, Poland, <sup>2</sup> Department of Biotechnology and Food Microbiology, University of Life Sciences in Poznan, Poznan, Poland

### **P7.49**

**Substrate preferences in an environmental microbial consortium degrading diesel oil**

Mateusz Sydow<sup>1</sup>, Daria Pęziak<sup>1</sup>, Aleksandra Piotrowska<sup>1</sup>, Marta Woźniak<sup>1</sup>, Łukasz Ławniczak<sup>1</sup>, Anna Parus<sup>1</sup>, Roman Marecik<sup>2</sup>, Łukasz Chrzanowski<sup>1</sup>

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### **P7.50**

#### **Biodegradation of diesel/biodiesel blends in urban soil**

Łukasz Chrzanowski<sup>1</sup>, Piotr Lisiecki<sup>1</sup>, Grzegorz Framski<sup>2</sup>,  
Anna Syguda<sup>1</sup>, Roman Marecik<sup>3</sup>, Kamila Myszk<sup>3</sup>, Jacek Staniewski<sup>1</sup>,  
Łukasz Ławniczak<sup>1</sup>

<sup>1</sup> Institute of Chemical Technology and Engineering, Poznan University of Technology, Poznan, Poland, <sup>2</sup> Institute of Bioorganic Chemistry, Polish Academy of Sciences, Poznan, Poland, <sup>3</sup> Department of Biotechnology and Food Microbiology, University of Life Sciences in Poznan, Poznan, Poland

### **P7.51**

#### **Identification and phylogenetic analysis of *Rhizopus* spp. based on 28S rRNA gene**

Adam Kuzdrałiński, Sylwia Kowalczyk, Elwira Komoń,  
Agnieszka Glibowska, Jakub Wyróstek, Zdzisław Targoński

University of Life Sciences in Lublin, Poland

### **P7.52**

#### **Metal cross-talk in Indian mustard results in induced uptake of Cd and Pb when supplemented with Zn**

Agnieszka Kutrowska<sup>1</sup>, Aneta Piechalak<sup>1</sup>, Arleta Małecka<sup>1</sup>,  
Anetta Hańć<sup>2</sup>, Danuta Baratkiewicz<sup>2</sup>, Barbara Tomaszewska<sup>1</sup>

<sup>1</sup> Department of Biochemistry, Faculty of Biology, Adam Mickiewicz University, Umultowska 89, 61-614 Poznan, Poland, <sup>2</sup> Department of Trace Element Analysis by Spectroscopy Method, Faculty of Chemistry, Adam Mickiewicz University, Umultowska 90, 61-614 Poznan, Poland

### **P7.53**

#### **High density polyethylene as a carbon source for *Achromobacter xylosoxidans***

Anna Kowalczyk<sup>1</sup>, Marek Chyc<sup>2</sup>, Przemysław Ryszka<sup>3</sup>,  
Kazimierz Strzałka<sup>1</sup>, Dariusz Łatowski<sup>1</sup>

<sup>1</sup> Department of Plant Physiology and Biochemistry, Faculty of Biochemistry, Biophysics and Biotechnology, Jagiellonian University, Gronostajowa 7, 30-387 Krakow, Poland, <sup>2</sup> Silesian Environmental Doctoral Study, Plac Gwarków 1, 40-166 Katowice, Poland, <sup>3</sup> Institute of Environmental Sciences, Faculty of Biology and Earth Sciences, Gronostajowa 7, 30-387 Krakow, Poland

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### **P7.54**

#### **The influence of vermicomposting on heavy metals contained in sewage sludge**

Hanine Suleiman<sup>1</sup>, Agnieszka Rorat<sup>2</sup>, Barbara Płytycz<sup>3</sup>,  
Małgorzata Kacprzak<sup>2</sup>, Franck Vandebulcke<sup>1</sup>

<sup>1</sup> Univ Lille Nord de France, LGCgE, EA 4515, Univ Lille 1, EcoNum-Eco-tox, F-59655 Villeneuve d'Ascq, France, <sup>2</sup> Institute of Environmental Engineering, Czestochowa University of Technology, Czestochowa, Poland, <sup>3</sup> Institute of Zoology, Jagiellonian University, Krakow, Poland

### **P7.55**

#### **The effect of phosphate starvation and mycorrhizae on the gene expression of phosphate transporters in greenhouse tomato**

Iwona Kowalska<sup>1</sup>, Marzena Wińska-Krysiak<sup>2</sup>, Anna Konieczny<sup>1</sup>

<sup>1</sup> Department of Soil Cultivation and Fertilization of Horticultural Plants, Faculty of Horticulture, University of Agriculture in Krakow, 29 Listopada 54, 31-425 Krakow, Poland, <sup>2</sup> Laboratory of Basic Research in Horticulture, Warsaw University of Life Sciences – SGGW, Nowoursynowska 159, 02-776 Warszawa, Poland

### **P7.56**

#### **Effect of composting proces on the changes of some organic compounds**

Marcin Milczarek, Ewa Neczaj, Dorota Kusal

Czestochowa University of Technology, Institute of Environmental Engineering, Brzeznicka 60a, 42-200 Czestochowa, Poland

### **P7.57**

#### **Isolation and characterization of plant growth-promoting rhizobacteria (PGPR) from isolated from Arabidopsis thaliana (L.) Heynh. and Morus alba L. grown on heavy metals rich acid soi**

Anna Grobelak, Anna Napora, Anna Grosser, Małgorzata Kacprzak

Institute of Environmental Engineering, Czestochowa University of Technology, Brzeznicka 60a, Czestochowa 42-200, Poland

### **P7.58**

#### **Biogenic catalysis in sulphide minerals weathering processes and acid mine drainage genesis**

Maria Kusnierova<sup>1</sup>, Maria Prascakova<sup>1</sup>, Anna K. Nowak<sup>2</sup>,  
Zbigniew Wzorek<sup>2</sup>

<sup>1</sup> Institute of Geotechnics, Slovak Academy of Sciences, Watsonova 45, SK-04353 Kosice, Slovak Republic, kusnier@saske.sk, prascak@saske.sk, <sup>2</sup> Institute of Chemistry and Inorganic Technology, Krakow University of Technology, Warszawska 24, 31-155 Krakow, Poland

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### **P7.59**

#### **A very dynamic development of the industry in recent years is the major cause of water and soil pollution**

Zuzanna Szczepaniak<sup>1</sup>, Justyna Stanińska<sup>2</sup>, Andrzej Olszanowski<sup>3</sup>

<sup>1</sup> Institute of Food Technology of Plant Origin, Poznan University of Life Sciences, Poznan, Poland, <sup>2</sup> Department of Biotechnology and Food Microbiology, Poznan University of Life Sciences, Poznan, Poland, <sup>3</sup> Institute of Chemical Technology and Engineering, Poznan University of Technology, Poznan, Poland

### **P7.60**

#### **Biodegradation of soot components by soil bacteria**

Barbara Kalicka<sup>1</sup>, Marek Chyc<sup>2</sup>, Monika Bojko<sup>1</sup>, Kazimierz Strzałka<sup>1</sup>, Dariusz Latowski<sup>1</sup>

<sup>1</sup> Department of Plant Physiology and Biochemistry, Faculty of Biochemistry, Biophysics and Biotechnology, Jagiellonian University, Gronostajowa 7, 30-387 Krakow, Poland, <sup>2</sup> Silesian Environmental Doctoral Study, Plac Gwarków 1, 40-166 Katowice, Poland

### **P7.61**

#### **Biodiesel-derived crude glycerol as a substrate for fumaric acid production by fungus of the genus *Rhizopus***

Elwira Komoń, Jakub Wyróstek, Adam Kuzdrański, Zdzisław Targoński

University of Life Sciences in Lublin

### **P7.62**

#### **Effectiveness of eco-friendly, natural products in *in vitro* rooting of *Prunus domestica* L. microshoots.**

Alina Wiszniewska, Barbara Nowak, Anna Kołton

Department of Botany and Plant Physiology, Faculty of Horticulture, University of Agriculture in Krakow

### **P7.63**

#### **Monoaromatic hydrocarbon degradation by selected bacterial strain**

Przemysław Petryszak, Paweł Kaszycki

Department of Biochemistry, Institute of Plant Biology and Biotechnology, Faculty of Horticulture, University of Agriculture in Krakow, al. 29 Listopada 54, 31-425 Krakow, Poland

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### **P7.64**

#### **The improvement of fumaric acid production through co-utilization of glycerol and pectin by *Rhizopus oryzae* ATCC 20344**

Jakub Wyrostek, Elwira Komoń, Adam Kuzdraliński, Zdzisław Targoński

University of Life Sciences in Lublin

### **P7.65**

#### **Biostimulation of xenobiotic-degrading bacterial consortia with oxygen-releasing compo**

Paweł Kaszycki, Paula Banaś, Przemysław Petryszak

Department of Biochemistry, Institute of Plant Biology and Biotechnology, Faculty of Horticulture, University of Agriculture in Krakow

### **P7.66**

#### **Analysis of physico-chemical properties of porous carriers for bacteria immobilization**

Dagmara Leśniak, Paulina Worsztynowicz

Poznan University of Life Science, Department of Food Biotechnology and Microbiology

### **P7.67**

#### **The cultivation of endophytic methanotrophs isolated from different species *Sphagnum* as perspective for environmental bioengineering**

Zofia Stępniewska, Agnieszka Kuźniar

The John Paul II Catholic University of Lublin, Department of Biochemistry and Environmental Chemistry Ul. Konstantynow 11, 20-708 Lublin, Poland

### **P7.69**

#### **The physiological response of perennial grasses grown on heavy-metal polluted soil**

Krystyna Rybka<sup>1</sup>, Grzegorz Żurek<sup>1</sup>, Marta Pogrzeba<sup>2</sup>, Jacek Krzyżak<sup>2</sup>, Kamil Prokopiuk<sup>1</sup>

<sup>1</sup> Plant Breeding and Acclimatization Institute IHAR-PIB, Radzików, 05-870 Błonie, Poland, <sup>2</sup> Phytoremediation Team, Institute for Ecology of Industrial Areas, 40-844 Katowice, Poland

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### **P7.69**

#### **Utilisation of betaine in vinasse stillage by a mixed culture of aerobic bacteria under non-controlled pH**

Agnieszka Ryznar-Luty, Edmund Cibis, Małgorzata Krzywonos

Wroclaw University of Economics, Department of Bioprocess Engineering

### **P7.70**

#### **Use of biotechnological methods in reforestation of degraded land**

Rafał Ważny<sup>1</sup>, Katarzyna Turnau<sup>1,2</sup>

<sup>1</sup> Jagiellonian University, Malopolska Centre of Biotechnology, Gronostajowa 7, 30-387 Krakow, <sup>2</sup> Jagiellonian University, Institute of Environmental Sciences, Gronostajowa 7, 30-387 Krakow

## **GREEN BIOTECHNOLOGY**

### **Session 8**

#### **Plant Genetic Engineering**

### **P8.1**

#### **Comparative analysis of Gal4 and split-ubiquitin-based yeast two-hybrid systems for *Arabidopsis thaliana* Proliferating Cell Nuclear Antigen studies**

Agata Jakubowska, Olga Sztatelman, Wojciech Strzałka

Department of Plant Biotechnology, Faculty of Biochemistry, Biophysics and Biotechnology, Jagiellonian University, Gronostajowa 7, 30-378 Krakow, Poland

### **P8.2**

#### **Efficient *Agrobacterium rhizogenes*-mediated transformation of haploid and diploid sugar beet (*Beta vulgaris* L.) explants**

Magdalena Klimek-Chodacka, Iwona Zapła, Rafał Barański

Unit of Genetics, Plant Breeding and Seed Science, Institute of Plant Biology and Biotechnology, Faculty of Horticulture, University of Agriculture in Krakow, Al. 29 Listopada 54, 31-425 Krakow, Poland

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### P8.3

**DesC desaturase of cyanobacterium *Synechococcus vulcanus* expression in canola plants does not improve the low positive temperature growth**

Mariia Slyvets<sup>1,2</sup>, Liudmyla Sakhno<sup>1</sup>, Yuri Sheludko<sup>1</sup>

<sup>1</sup> Institute of Cell Biology and Genetic Engineering NAS of Ukraine, <sup>2</sup> National Technical University of Ukraine "Kyiv Polytechnic Institute"

### P8.4

**A method of epoxides determination in bacterial cells**

Paulina Kuczynska<sup>1</sup>, Sylwia Leskiewicz<sup>1,2</sup>, Wojciech Strzałka<sup>3</sup>,  
Monika Olchawa-Pajor<sup>1</sup>, Monika Bojko<sup>1</sup>, Dariusz Latowski<sup>1</sup>,  
Kazimierz Strzałka<sup>1</sup>

<sup>1</sup> Department of Plant Physiology and Biochemistry, Faculty of Biochemistry, Biophysics and Biotechnology, Jagiellonian University, <sup>2</sup> Faculty of Chemistry, Jagiellonian University, <sup>3</sup> Department of Plant Biotechnology, Faculty of Biochemistry, Biophysics and Biotechnology, Jagiellonian University

### P8.5

**Comparison of expression and activity of violaxanthin and diadinoxanthin de-epoxidases in *Escherichia coli* *Origami b* strain**

Monika Olchawa-Pajor<sup>1</sup>, Monika Bojko<sup>1</sup>, Wojciech Strzałka<sup>2</sup>,  
Paulina Kuczyńska<sup>1</sup>, Dariusz Latowski<sup>1</sup>, Kazimierz Strzałka<sup>1</sup>

<sup>1</sup> Department of Plant Physiology and Biochemistry, Faculty of Biochemistry, Biophysics and Biotechnology, Jagiellonian University, Gronostajowa 7, 30-387 Krakow, Poland, <sup>2</sup> Department of Plant Biotechnology, Faculty of Biochemistry, Biophysics and Biotechnology, Jagiellonian University, Gronostajowa 7, 30-387 Krakow, Poland

### P8.6

**Identification and analysis of *WUSCHEL* (*WUS/WOX*) and *CLAVATA* genes in cucumber (*Cucumis sativus* L.)**

Michał Wojcieszek<sup>1</sup>, Magdalena Pawełkowicz<sup>1</sup>, Marcin Olszak<sup>1</sup>,  
Agata Jędrzejuk<sup>2</sup>, Zbigniew Przybecki<sup>1</sup>, Wojciech Burza<sup>1</sup>

<sup>1</sup> Department of Plant Genetics, Breeding & Biotechnology, Faculty of Horticulture and Landscape Architecture, Warsaw University of Life Sciences- SGGW, ul. Nowoursynowska 166, 02-776, Warsaw, Poland, <sup>2</sup> Department of Ornamental Plants, Faculty of Horticulture and Landscape Architecture, Warsaw University of Life Sciences- SGGW, ul. Nowoursynowska 166, 02-776, Warsaw, Poland

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### **P8.7**

#### **Protoplasts of *Lathyrus* sp. – optimization of isolation procedure**

Barbara Piwowarczyk<sup>1</sup>, Wojciech Rybiński<sup>2</sup>

<sup>1</sup> Department of Botany and Plant Physiology, Faculty of Horticulture, University of Agriculture in Krakow, Poland, <sup>2</sup> Institute of Plant Genetics, Polish Academy of Sciences, Poznan, Poland

### **P8.8**

#### **Processing of plant tissue bearing S-HBsAg for an oral vaccine against hepatitis B.**

Marcin Czyż<sup>1</sup>, Tomasz Pniewski<sup>1</sup>, Józef Kapusta<sup>2</sup>, Radosław Dembczyński<sup>3</sup>, Roman Marecik<sup>3</sup>, Andrzej Płucienniczak<sup>2</sup>

<sup>1</sup> Institute of Plant Genetics, Polish Academy of Sciences, Poznan, Poland, <sup>2</sup> Institute of Biotechnology and Antibiotics, Warszawa, Poland, <sup>3</sup> Poznan Life Science University, Poland

## **GREEN BIOTECHNOLOGY**

### **Session 9**

#### **Animal Biotechnology in Biomedicine**

### **P9.1**

#### **Infection of Human Cell Lines with *Porcine Endogenous Retroviruses***

Sabina Gałka, Dagna Sołtysik, Daria Matczyńska, Daniel Sypniewski, Tomasz Loch, Ewa Nowak, Ilona Bednarek

Department of Biotechnology and Genetic Engineering, Medical University of Silesia in Katowice, Narcyzów 1, 41-200 Sosnowiec, Poland

### **P9.2**

#### **The influence of porcine endogenous retrovirus infection on the expression of toll-like receptor genes in human dermal fibroblasts**

Magdalena Kimsa<sup>1</sup>, Sławomir Dudek<sup>2</sup>, Małgorzata Kimsa<sup>1</sup>, Barbara Strzałka-Mrozik<sup>1</sup>, Joanna Gola<sup>1</sup>, Celina Kruszniewska-Rajs<sup>1</sup>, Jolanta Adamska<sup>1</sup>, Urszula Mazurek<sup>1</sup>

<sup>1</sup> Department of Molecular Biology, Medical University of Silesia, Narcyzow 1, 41-200 Sosnowiec, Poland, <sup>2</sup> Department of Pharmacognosy and Phytochemistry, Medical University of Silesia, Jagiellonska 4, 41-200 Sosnowiec, Poland

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### **P9.3**

#### **Cyclosporine a and expression of genes associated with cell cycle in normal human dermal fibroblasts cultured in vitro**

Grzegorz Hibner<sup>1</sup>, Adam Wilczok<sup>1</sup>, Tomasz Janikowski<sup>2</sup>, Urszula Mazurek<sup>2</sup>

<sup>1</sup> Department of Biopharmacy, Medical University of Silesia, Narcyzów 1, 41-200 Sosnowiec, Poland, <sup>2</sup> Department of Molecular Biology, Medical University of Silesia, Narcyzów 1, 41-200 Sosnowiec, Poland

### **P9.4**

#### **Expression of wnt/ $\beta$ -catenin signalling pathway target genes in endometrial cancer**

Tomasz Janikowski<sup>1</sup>, Grzegorz Cwynar<sup>2</sup>, Agnieszka Jęda<sup>2</sup>, Grzegorz Hibner<sup>3</sup>, Joanna Orchel<sup>1</sup>, Andrzej Witek<sup>2</sup>, Urszula Mazurek<sup>1</sup>

<sup>1</sup> Department of Molecular Biology, Medical University of Silesia, Narcyzów 1, 41-200 Sosnowiec, Poland, <sup>2</sup> Department and Clinic of Obstetric and Gynecology, Medical University of Silesia, ul. Medyków 16, 40-752 Katowice, <sup>3</sup> Department of Biopharmacy, Medical University of Silesia, Narcyzów 1, 41-200 Sosnowiec

### **P9.5**

#### **Changes in the transcriptome of genes related to tnf induced pathways in perv infected cells**

Joanna Gola, Barbara Strzałka-Mrozik, Magdalena Kimsa, Małgorzata Kimsa, Jolanta Adamska, Celina Kruszniewska-Rajs, Urszula Mazurek

Department of Molecular Biology, Medical University of Silesia, 1 Narcyzów St., 41-200 Sosnowiec, Poland

### **P9.6**

#### **Abundance of blastocysts developed in vitro from porcine cloned embryos reconstructed with cell nuclei of adult bone marrow-descended mesenchymal stem cells**

Marcin Samiec, Jolanta Opiela, Jurij Koseniuk

National Research Institute of Animal Production, Department of Biotechnology of Animal Reproduction, Balice n. Krakow, Poland

### **P9.7**

#### **Scriptaid-induced epigenetic modulation of adult dermal fibroblast cells before their use for somatic cell nuclear transfer in pigs**

Marcin Samiec, Maria Skrzyszowska

National Research Institute of Animal Production, Department of Biotechnology of Animal Reproduction, Balice n. Krakow, Poland



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### **P9.8**

#### **The effects of the alloferon and its analogues on the immune responses and heart beating in *Tenebrio molitor* beetle**

Arkadiusz Urbański<sup>1</sup>, Elżbieta Czarniewska<sup>2</sup>, Szymon Chowański<sup>2</sup>, Jan Lubawy<sup>2</sup>, Mariola Kuczer<sup>3</sup>, Edward Baraniak<sup>1</sup>, Grzegorz Rosiński<sup>2</sup>

<sup>1</sup> Department of Systematical Zoology, Faculty of Biology, Adam Mickiewicz University, Poznan, Poland, <sup>2</sup> Department of Animal Physiology and Development, Faculty of Biology, Adam Mickiewicz University, Poznan, Poland, <sup>3</sup> Faculty of Chemistry, University of Wrocław, Wrocław, Poland

### **P9.9**

#### **Can we use the beetle heart as a model of cardiac ageing?**

Karolina Walkowiak, Monika Szymczak, Joanna Pacholska-Bogalska, Grzegorz Rosiński

Department of Animal Physiology and Developmental Biology, Faculty of Biology, Adam Mickiewicz University

### **P9.10**

#### **Identification of 77 novel SNPs within entire intron A of the Pregnancy-Associated Glycoprotein 2-like gene subfamily (PAG2-L) in cross-breed pigs\***

Martyna Bieniek, Grzegorz Panasiewicz, Aleksandra Zamojska, Bożena Szafranska

Department of Animal Physiology, Faculty of Biology and Biotechnology, University of Warmia and Mazury in Olsztyn, 10-719 Olsztyn-Kortowo, Poland

### **P9.11**

#### **Identification of 5 novel SNPs within intron E & F of porcine Pregnancy-Associated Glycoprotein 2-like subfamily (pPAG2-L) in two hybrid lines\***

Grzegorz Panasiewicz<sup>1</sup>, Aleksandra Zamojska<sup>1</sup>, Martyna Bieniek<sup>1</sup>, Roman Jędryczko<sup>2</sup>, Bożena Szafranska<sup>1</sup>

<sup>1</sup> Department of Animal Physiology, Faculty of Biology and Biotechnology, University of Warmia and Mazury in Olsztyn, 10-719 Olsztyn-Kortowo, <sup>2</sup> Veterinary Diagnostic Laboratory, 11-036 Giętrząwałd

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### **P9.12**

#### **Novel glycoprotein family within human placenta detected with polyclonals against recombinant or native porcine Pregnancy-Associated Glycoproteins\***

Marta Majewska<sup>1</sup>, Aleksandra Zamojska<sup>2</sup>, Grzegorz Panasiewicz<sup>2</sup>,  
Martyna Bieniek<sup>2</sup>, Zbigniew Łaganowski<sup>3</sup>, Bożena Szafranska<sup>2</sup>

<sup>1</sup> Department of Human Physiology, Faculty of Medical Sciences, University of Warmia and Mazury in Olsztyn, 10-082 Olsztyn, <sup>2</sup> Department of Animal Physiology, Faculty of Biology and Biotechnology, University of Warmia and Mazury in Olsztyn, 10-719 Olsztyn-Kortowo, <sup>3</sup> The Woman's Health Clinic, 10-684 Olsztyn, Poland

### **P9.13**

#### **Antibacterial peptides from WPC hydrolysate.**

Paulina Worsztynowicz, Dagmara Leśniak, Włodzimierz Grajek

Poznan University of Life Sciences

## **GREEN BIOTECHNOLOGY**

### **Session 10**

#### **Animal Biotechnology in Agriculture**

### **P10.1**

#### **Cytogenetic mapping of the *HSPB* genes in the domestic Bovids**

Barbara Danielak-Czech, Katarzyna Kruczek,  
Anna Kozubska-Sobocińska, Barbara Rejduch, Agnieszka Bąk

Department of Animal Cytogenetics and Molecular Genetics, National Research Institute of Animal Production, Krakowska 1, 32-083 Balice/  
Krakow, Poland

### **P10.2**

#### **Chromosomal assignment of the small heat shock proteins genes in the pig genome**

Barbara Danielak-Czech, Katarzyna Kruczek,  
Anna Kozubska-Sobocińska, Barbara Rejduch, Agnieszka Bąk

Department of Animal Cytogenetics and Molecular Genetics, National Research Institute of Animal Production, Krakowska 1, 32-083 Balice/  
Krakow, Poland

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### **P10.3**

#### **Comparative mapping of *UCP2* and *UCP3* genes in the pig genome**

Anna Kozubska-Sobocińska, Agnieszka Bąk,  
Barbara Danielak-Czech, Barbara Rejduch, Małgorzata Miszczak

Department of Animal Cytogenetics and Molecular Genetics, National  
Research Institute of Animal Production, Krakowska 1, 32-083 Balice/  
Krakow, Poland

### **P10.4**

#### **Visfatin as a bioindicator of endothelial cells dysfunction**

Ewa Octoń, Krystyna Pierzchała-Koziec, Joanna Zubel-Łojek,  
Anna Latacz

University of Agriculture in Krakow, Department of Animal Physiology  
and Endocrinology, Al. Mickiewicza 24/28, 30-059 Krakow, Poland

### **P10.5**

#### **An universal method for the quantitative determination of cattle and horse components contaminating raw and processed pork meat**

Małgorzata Natonek-Wiśniewska, Piotr Krzyścin, Katarzyna Kruczek

Department of Animal Cytogenetics and Molecular Genetics, National  
Research Institute of Animal Production, Balice, Poland

### **P10.6**

#### **A real-time quantitative PCR detection method for beef, pork, chick- en and mutton components in foods**

Małgorzata Natonek-Wiśniewska, Piotr Krzyścin, Katarzyna Kruczek

Department of Animal Cytogenetics and Molecular Genetics, National  
Research Institute of Animal Production, Balice, Poland

### **P10.7**

#### **New polymorphisms in regulatory regions of *CAPN3* gene in broil- er chickens**

Katarzyna Piórkowska<sup>1</sup>, Joanna Doktor<sup>2</sup>, Katarzyna Połtowicz<sup>2</sup>,  
Katarzyna Ropka-Molik<sup>1</sup>

<sup>1</sup> Laboratory of Genomics, National Research Institute of Animal Produc-  
tion, Krakowska 1, 32-083 Balice, Poland, <sup>2</sup> Department of Animal Ge-  
netics and Breeding, National Research Institute of Animal Production,  
Krakowska 1, 32-083 Balice, Poland

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### **P10.8**

**Different culture media affect growth rate and morphology of porcine bone marrow-derived mesenchymal stromal cells- the preliminary results of media screening suitable for both porcine MSCs and bovine embryo *in vitro* culture**

Jolanta Opiela, Michał Bochenek, Joanna Romanek, Zdzisław Smorąg

Department of Biotechnology of Animal Reproduction, National Research Institute of Animal Production, 32-083 Balice n. Krakow

### **P10.9**

**The impact of long-term *in vitro* culture and differentiation of porcine mesenchymal stem cells (pMSC) on the cell cycle distribution and nuclear DNA profile**

Jolanta Opiela, Marcin Samiec, Michał Bochenek, Joanna Romanek

Department of Biotechnology of Animal Reproduction, National Research Institute of Animal Production, 32-083 Balice n. Krakow, Poland

### **P10.10**

**RNA-seq analysis of differentially expressed genes in muscle tissue of Pietrain and Puławska pigs**

Katarzyna Ropka-Molik<sup>1</sup>, Kacper Żukowski<sup>2</sup>, Robert Eckert<sup>2</sup>, Artur Gurgul<sup>1</sup>, Katarzyna Piórkowska<sup>1</sup>

<sup>1</sup> Laboratory of Genomics, National Research Institute of Animal Production, Krakowska 1, 32-083 Balice, Poland, <sup>2</sup> Department of Animal Genetics and Breeding, National Research Institute of Animal Production, Krakowska 1, 32-083 Balice, Poland

### **P10.11**

**An increase of piglets survivability after “biolactin” *per os* administration**

Barbara Gajda<sup>1</sup>, Barbara Szczęśniak-Fabiańczyk<sup>1</sup>, Katarzyna Poniedziałek-Kempny<sup>1</sup>, Izabela Mandryk<sup>1</sup>, Florian Ryszka<sup>2</sup>, Barbara Dolińska<sup>2</sup>, Lucyna Leszczyńska<sup>2</sup>, Zdzisław Smorąg<sup>1</sup>

<sup>1</sup> Department of Biotechnology of Animal Reproduction, National Research Institute of Animal Production, Krakowska 1, 32-083 Balice/Krakow, Poland, <sup>2</sup> Pharmaceutical Research and Production Plant (FZNP)

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### **P10.12**

#### **Association of calpastatin gene polymorphisms and meat quality traits in pig**

Anna Bereta<sup>2</sup>, Katarzyna Ropka-Molik<sup>1</sup>, Mirosław Tyra<sup>2</sup>,  
Marian Różycki<sup>2</sup>

<sup>1</sup> Laboratory of Genomics National Research Institute of Animal Production National Research Institute of Animal Production, Krakowska 1, 32-083 Balice, Poland, <sup>2</sup> Department of Animal Genetics and Breeding National Research Institute of Animal Production National Research Institute of Animal Production, Krakowska 1, 32-083 Balice, Poland

### **P10.13**

#### **Genetic characterization of Hucul horse populations based on microsatellite polymorphism**

Agnieszka Fornal, Anna Radko, Agata Piestrzyńska-Kajtoch

National Research Institute of Animal Production, Department of Cytogenetics and Molecular Genetics of Animals, Balice n. Krakow, Poland

### **P10.14**

#### **The impact of varied values of High Hydrostatic Pressure applied on porcine Mesenchymal Stem Cells on their survival rate and early apoptosis after cryopreservation**

Joanna Romanek, Jolanta Opiela, Zdzisław Smorąg

Department of Biotechnology of Animal Reproduction National Research Institute of Animal Production, Krakowska 1, 32-083 Balice, Poland

### **P10.15**

#### **Analysis of the changes in the expression profile of liver transcriptome by RNA-seq in pigs fed with various diet supplements**

Maria Oczkowicz<sup>1</sup>, Katarzyna Ropka-Molik<sup>1</sup>,  
Małgorzata Świątkiewicz<sup>2</sup>, Kacper Żukowski<sup>3</sup>, Artur Gurgul<sup>1</sup>

<sup>1</sup> National Research Institute of Animal Production, Laboratory of Genomics, <sup>2</sup> National Research Institute of Animal Production, Department of Animal Nutrition And Feed Science, <sup>3</sup> National Research Institute of Animal Production, Department of Animal Breeding and Genetics

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### **P10.16**

#### **Regulation of *Tenebrio molitor* heart beating by monoamines and tropane alkaloids**

Szymon Chowański, Jan Lubawy, Arkadiusz Urbański,  
Marta Spochacz, Grzegorz Smykalla, Grzegorz Rosiński

Department of Animal Physiology and Development, Faculty of Biology,  
Adam Mickiewicz University in Poznan

### **P10.17**

#### **Genetic polymorphisms of *lep* and *lepr* genes in relation with production and reproduction traits in cattle**

Anna Trakovická, Nina Moravčíková, Radovan Kasarda

Slovak University of Agriculture in Nitra, Department of Animal Genetics  
and Breeding Biology, Tr. A. Hlinku 2, 949 76 Nitra, The Slovak Republic

### **P10.18**

#### **Prp4 kinase is required for proper segregation of chromosomes during meiosis in *Schizosaccharomyces pombe***

Miroslava Požgajová<sup>1</sup>, Ľuboš Čipák<sup>2</sup>, Anna Trakovická<sup>1</sup>

<sup>1</sup> Slovak University of Agriculture, Tr. A. Hlinku 2, 94976 Nitra, Slovakia,

<sup>2</sup> Max F. Perutz Laboratories, Dr. Bohr-Gasse 9, A-1030 Vienna, Austria

### **P10.19**

#### **Genetic diversity in populations of Slovak Spotted cattle based on snps analyses**

Nina Moravčíková, Anna Trakovická, Alica Navrátilová

Slovak University of Agriculture in Nitra, Department of Animal Genetics  
and Breeding Biology, Tr. A. Hlinku 2, 949 76 Nitra, The Slovak Republic

### **P10.20**

#### **Analysis of Slovak Spotted breed for bovine beta casein A1 variant as risk factor for human health**

Martina Miluchová, Michal Gábor, Anna Trakovická

Slovak University of Agriculture in Nitra, Department of Genetics and  
Breeding Biology, 949 76 – Nitra, Tr. A Hlinku, 2, Slovakia

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### **P10.21**

#### **Analysis of CAPN1 and CAST gene polymorphisms in native dual purpose breeds of cattle in Slovakia**

Michal Gábor, Martina Miluchová, Anna Trakovická

Slovak University of Agriculture in Nitra, Department of Genetics and Breeding Biology, Tr. A. Hlinku 2, 949 76 Nitra, Slovakia

### **P10.22**

#### **Allatostatins as potential bioinsecticides?**

Jan Lubawy<sup>1</sup>, Arkadiusz Urbański<sup>2</sup>, Szymon Chowański<sup>1</sup>,  
Ewelina Paluch<sup>3</sup>, Mariola Kuczer<sup>4</sup>, Grzegorz Rosiński<sup>1</sup>

<sup>1</sup> Department of Animal Physiology and Development, Adam Mickiewicz University in Poznan, <sup>2</sup> Department of Systematic Zoology, Adam Mickiewicz University in Poznan, <sup>3</sup> Department of Plant Physiology, Adam Mickiewicz University in Poznan, <sup>4</sup> Faculty of Chemistry, University of Wrocław

### **P10.23**

#### **Relationships between type traits and functional productive life in Slovak Holstein Cows**

Eva Strapáková<sup>1</sup>, Peter Strapák<sup>2</sup>, JuraĽ Candrák<sup>1</sup>

<sup>1</sup> Slovak University of Agriculture in Nitra

## **Session 11**

### **Legislation for biotechnologists**

#### **P11.1**

##### **Conjoint duty for biotechnologists**

Sebastian Kwiatkowski<sup>1,2,3</sup>

<sup>1</sup> University of Warsaw, <sup>2</sup> Faculty of Biology, <sup>3</sup> Students Scientific Association of Genetics and Epigenetics UW

## **Satellite panels**

### **Induced pluripotent stem cells: a future of biomedicine**

#### **P1.1**

##### **Role of heme oxygenase-1 in generation and differentiation of iPS cells**

Jacek Stepniewski, Tomasz Pacholczak, Alicja Jozkowicz, Jozef Dulak

Department of Medical Biotechnology, Faculty of Biochemistry, Biophysics, and Biotechnology, Jagiellonian University, Gronostajowa 7, 30-387 Krakow

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### P1.2

#### Differentiation of iPS toward endothelial cells

Neli Kachamakova-Trojanowska<sup>1</sup>, Michael Beilharz<sup>3</sup>, Karolina Bukowska-Strakova<sup>1</sup>, Jacek Stępniewski<sup>3</sup>, Antonia Chmura-Skirińska<sup>2</sup>, Jozef Dulak<sup>3</sup>, Alicja Jozkowicz<sup>3</sup>

<sup>1</sup>Laboratory of Molecular Pharmacology of Endothelium; <sup>2</sup>Laboratory of EPR Spectroscopy, JCET; <sup>3</sup>Department of Medical Biotechnology, Faculty of Biochemistry, Biophysics, and Biotechnology, Jagiellonian University, Gronostajowa 7, 30-387 Krakow

### P1.3

#### Application of epigenetic switch for generation of human ips cells

Wróblewska Joanna<sup>1</sup>, Kulcenty Katarzyna<sup>1</sup>, Oleksiewicz Urszula<sup>1</sup>, Suchorska Wiktoria<sup>1,2</sup>, Jannik Andersen<sup>4</sup>, Giulio Draetta<sup>4</sup>, Mostoslavsky Gustavo<sup>3</sup> and Wiznerowicz Maciej<sup>1,2</sup>

<sup>1</sup>Gene Therapy Laboratory, Department of Cancer Immunology, Poznan University of Medical Sciences, Chair of Medical Biotechnology, Poland, <sup>2</sup>Gene Therapy Laboratory, Department of Cancer Immunology, Greater Poland Cancer Centre, Poland, <sup>3</sup>Boston University School of Medicine, Dept. of Medicine, Boston, MA, USA, <sup>4</sup>Institute for Applied Cancer Science, University of Texas MD Anderson Cancer Center, Houston, TX, USA

### P1.4

#### Dynamics of retroelements activity during reprogramming of human fibroblast to induced pluripotent stem cells (iPSc).

Katarzyna Tomczak<sup>1,2</sup>, Urszula Oleksiewicz<sup>2</sup> and Maciej Wiznerowicz<sup>2,3</sup>

<sup>1</sup>Postgraduate School of Molecular Medicine, Medical University of Warsaw, Warsaw, <sup>2</sup>Gene Therapy Laboratory, Department of Cancer Immunology, Poznan University of Medical Sciences, Chair of Medical Biotechnology, Poland, <sup>3</sup>Gene Therapy Laboratory, Department of Cancer Immunology, Greater Poland Cancer Centre, Poland

### P1.5

#### KAP1 protein is involved in reprogramming of human induced pluripotent stem cells (iPS)

Katarzyna Kulcenty<sup>1</sup>, Urszula Oleksiewicz<sup>1</sup>, Maciej Wiznerowicz<sup>1,2</sup>

<sup>1</sup>Gene Therapy Laboratory, Department of Cancer Immunology, Poznan University of Medical Sciences, Chair of Medical Biotechnology, Poland, <sup>2</sup>Gene Therapy Laboratory, Department of Cancer Immunology, Greater Poland Cancer Centre, Poland



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### **P1.6**

#### **TRIM28/KAP1 triggers DNA methylation of cellular promoters during reprogramming of human fibroblasts to induced pluripotent cells.**

Marta Gładych<sup>1</sup>, Urszula Oleksiewicz<sup>1</sup> and Maciej Wiznerowicz<sup>1,2</sup>

<sup>1</sup> Gene Therapy Laboratory, Department of Cancer Immunology, Poznan University of Medical Sciences, Chair of Medical Biotechnology, Poland,

<sup>2</sup> Gene Therapy Laboratory, Department of Cancer Immunology, Greater Poland Cancer Centre, Poland

### **P1.7**

#### **Role of TRIM28/KAP1 protein in reprogramming of mouse fibroblasts to induced pluripotent stem cells (miPSCs).**

Marta Klimczak<sup>1</sup>, Anna Misiewicz<sup>1</sup>, Andrzej Mackiewicz<sup>1,2</sup> and Maciej Wiznerowicz<sup>1,2</sup>

<sup>1</sup> Gene Therapy Laboratory, Department of Cancer Immunology, Poznan University of Medical Sciences, Chair of Medical Biotechnology, Poland,

<sup>2</sup> Gene Therapy Laboratory, Department of Cancer Immunology, Greater Poland Cancer Centre, Poland

### **P1.8**

#### **Differentiation of induced pluripotent stem cells (iPSC) into functional neurons**

Sylwia Mazurek<sup>1</sup>, Joanna Wróblewska<sup>1</sup>, and Maciej Wiznerowicz<sup>1,2</sup>

<sup>1</sup> Gene Therapy Laboratory, Department of Cancer Immunology, Poznan University of Medical Sciences, Chair of Medical Biotechnology, Poland,

<sup>2</sup> Gene Therapy Laboratory, Department of Cancer Immunology, Greater Poland Cancer Centre, Poland

### **P1.9**

#### **TRIM28/KAP1 protein controls self-renewal of human induced pluripotent stem cells.**

Wojciech Barczak<sup>1</sup>, Katarzyna Kulcenty<sup>1</sup> and Maciej Wiznerowicz<sup>1,2</sup>

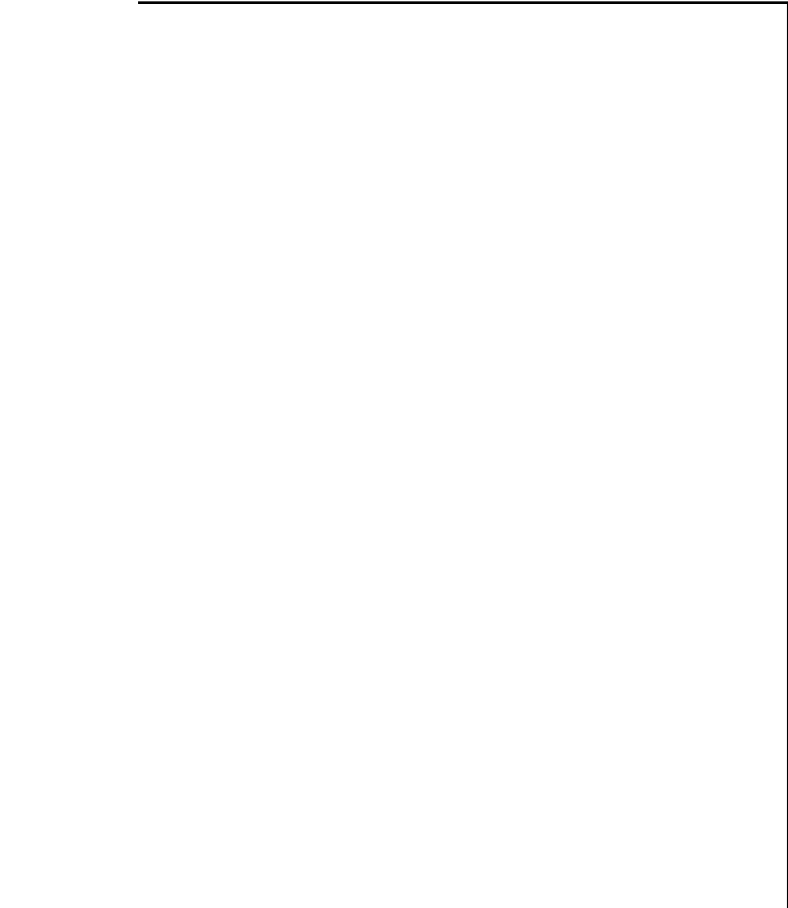
<sup>1</sup> Gene Therapy Laboratory, Department of Cancer Immunology, Poznan University of Medical Sciences, Chair of Medical Biotechnology, Poland,

<sup>2</sup> Gene Therapy Laboratory, Department of Cancer Immunology, Greater Poland Cancer Centre, Poland

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**anima-it@anima-it.pl**  
**<http://www.anima-it.pl/default.htm>**

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Firma Enbio Technology Sp. z o.o. swój rodowód wywodzi ze spółki Vitroservice, której podstawową działalnością była produkcja roślin metodą In-vitro. Jako dostawca musieliśmy spełniać najwyższe standardy jakościowe, co wymagało pracy nad ciągłym doskonaleniem procesów stosowanych w firmie i zaowocowało wynalezieniem unikatowych w skali światowej urządzeń do sterylizacji płynów i mas opartych na technologii mikrofalowej. Mikrofalowy autoklaw EnbioJet jest najnowszym osiągnięciem technologicznym spółki i przeznaczony jest do sterylizacji podłoży mikrobiologicznych. Cały proces sterylizacji w autoklawie EnbioJet trwa ok. 7 min. (od włożenia do wyjęcia kolby), a ekspozycja na wysoką temperaturę jest jeszcze krótsza (60–90 sekund).

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**stand**  
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**fax (+48-22) 571-40-30**  
**www.eppendorf.pl**

Międzynarodowy koncern biotechnologiczny Eppendorf powstał w Hamburgu w 1945 r. Dziś posiada własne filie w 20 krajach świata i zatrudnia ponad 2500 pracowników. Otwierając w 2011 r. firmę Eppendorf Poland Sp. z o.o., grupa realizuje strategię pozostawania w najbliższym kontakcie ze swoimi odbiorcami – środowiskiem naukowym, medycznym, farmaceutycznym i przemysłem biotechnologicznym oraz z partnerami biznesowymi. W 2011 roku obchodziliśmy 50. rocznicę wynalezienia przez Eppendorf pierwszej pipety tłokowej, która zrewolucjonizowała technikę pracy w laboratorium. Blisko pięćdziesięcioletnią historię mają również nasze wirówki, z których pierwsza miała swoją premierę w 1964 r. Przez wszystkie lata, które minęły od tamtych pionierskich osiągnięć, Eppendorf pozostawał wierny swoim podstawowym zasadom: najwyższej jakości, bezpieczeństwu i ergonomii projektowanych urządzeń i systemów. Pozostając zawsze w awangardzie jeśli chodzi o innowacje technologiczne, nie zapominaliśmy o komforcie pracy użytkownika, elastyczności rozwiązań i co szczególnie ważne w dzisiejszej dobie – ochronie środowiska naturalnego.

Nasze portfolio produktów obejmuje praktycznie wszystkie dziedziny nauk biologicznych. Oprócz wspomnianych już pipet i wirówek, zawiera dozowniki, materiały zużywalne, systemy automatycznego pipetowania, amplifikacji DNA metodą PCR, mikromanipulatory komórkowe i elektroporatory. Cennym uzupełnieniem tej oferty są produkty amerykańskiej firmy New Brunswick Scientific, która wchodzi w skład naszej grupy, znajdujące szerokie zastosowanie w dziedzinach związanych z hodowlami tkankowymi, przechowywaniem komórek, oraz w przemyśle biotechnologicznym.

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**dfmp** FÜNF HÖFE

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**fax (+49-89) 210-296-33**  
**info@df-mp.com**  
**www.df-mp.com**

df-mp offers sophisticated services covering all technical fields. The firm's commitment to excellence has led to the firm's recognition as one of Germany's leading intellectual property firms.

Our patent lawyers are experts in patent drafting and prosecution, challenging the patents of third parties as well as in defending patents in opposition and nullity proceedings. We advise our clients on patent infringement in EU and US. df-mp has considerable experience in providing opinions on potential litigation, freedom-to-operate and due diligence projects. We can maximize patent portfolios and develop patent extension strategies for our clients.

df-mp's clients appreciate our international focus and our multinational, multilingual team. Having firm members with qualifications and experience in intellectual property law in the European and U.S. legal systems, df-mp is uniquely able to develop strategies and concepts that are customized for both. df-mp was noted as a top firm in Germany in "IAM 1000: The World's Leading Patent Practitioners 2013" since the firm "operates at the cutting edge of ...biotechnology, pharmaceutical and chemistry areas" and "multinationals flock here for the group's cross-border experience".

**stand  
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**LAB-JOT Ltd. Sp. z o.o.**

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**02-486 Warszawa  
Al. Jerozolimskie 214  
tel. (+48-22) 335-98-84, 203-41-55  
tel./fax (+48-22) 758-59-07  
fax (+48-22) 335-98-19, 203-41-56  
labjot@labjot.com  
info@labjot.com  
www.labjot.com**

Lab-JOT Ltd. Sp. z o.o. powstała w grudniu 2011 r. i kontynuuje działalność prywatnej firmy Lab-JOT Tomasz Dzięczewski założonej w 1993 r.

Od 1995 r. Lab-JOT jest dystrybutorem w Polsce odczynników amerykańskiej firmy New England BioLabs, a od 2000 r. – dystrybutorem odczynników firmy Cell Signaling Technology. W dniu 1.01.2012 r. Lab-JOT Ltd. Sp. z o.o. została mianowana przedstawicielem handlowym i naukowym w Polsce firm New England BioLabs oraz Cell Signaling Technology. Jednocześnie uzyskała miano jedyne autoryzowanego przez obu producentów dystrybutora ich produktów w Polsce. Lab-JOT reprezentuje w Polsce też amerykańską firmę Electron Microscopy Sciences oferującą wyposażenie dla mikroskopii elektronowej

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**METTLER-TOLEDO Sp. z o.o.**

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**02-822 Warszawa  
ul. Poleczki 21  
tel. (+48-22) 440-67-00  
fax (+48-22) 440-67-38  
polska@mt.com  
www.mt.com**

METTLER TOLEDO jest wiodącym w świecie producentem i dostawcą wag do laboratorium, przemysłu oraz handlu detalicznego. Firma posiada także wiodącą pozycję rynkową w odniesieniu do innych urządzeń analitycznych oraz kontroli produktów.

W naszej ofercie znajdują się m.in.: wagi analityczne i precyzyjne, mikrowagi, komparatory, wagosuszarki, aparaty do miareczkowania, gęstościomierze, refraktometry, pH-/ jono-/ konduktometry, elektrody, systemy analizy termicznej, automatyczne reaktory laboratoryjne, systemy do automatyzacji badań chemicznych oraz usługi serwisowe do wszystkich oferowanych urządzeń.

METTLER TOLEDO RAININ oferuje najszerszy wybór wygodnych dla dłoni pipet jedno- i wielokanałowych, manualnych i elektronicznych, czystych biologicznie końcówek oraz związanych z tym usług. Wszystko zaprojektowane z myślą, aby stworzyć wydajny, zintegrowany system.

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**Przedstawicielstwo w Polsce  
02-106 Warszawa  
ul. A. Pawińskiego 5A blok D  
tel. (+48-22) 659-58-95  
custserv.eur@mpbio.com  
www.mpbio.com**

MP Biomedicals jest ogóln światową korporacją z siedzibą w amerykańskim mieście Solon w południowej Kalifornii. Rozmieszczone na całym świecie i będące jej własnością fabryki szczytą się posiadaniem certyfikatów ISO, a ich produkty certyfikatami FDA. MP Biomedicals produkuje i sprzedaje ponad 55 000 produktów i jest jedyną w przemyśle firmą oferującą zarówno szeroki wachlarz produktów przeznaczonych do badań podstawowych, jak również specyficzne, oczyszczone związki chemiczne typu Fine Chemicals oraz produkty diagnostyczne. Sieć przedstawicielstw firmy oraz jej dystrybutorów znajdujących się w Europie, Azji, Australii i Ameryce gwarantuje klientom dostawę wysokiej jakości produktów w wymaganym miejscu i terminie.

MP Biomedicals is a world-wide corporation, with ISO-certified and FDA-approved manufacturing and distribution facilities throughout the globe and headquartered in Southern California. The company manufactures and sells more than 55,000 products and is one of the only companies in the industry to offer a comprehensive line of life science, fine chemical and diagnostic products. A vast network of global distributors and satellite facilities and offices throughout Europe, Asia, Australia and the Americas assures customers top quality products delivered when and where needed.

stand

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**POLSKA FEDERACJA  
BIOTECHNOLOGII**

**90-924 Łódź  
ul. Stefanowskiego 4/10  
tel. (+48-42) 631-34-29  
egro@p.lodz.pl  
www.pfb.info.pl**

Polska Federacja Biotechnologii (stowarzyszenie non-profit) zainaugurowała swoją działalność we wrześniu 2004 roku, stając się nową platformą rozwoju i popularyzacji osiągnięć biotechnologicznych w Polsce. Misją Federacji jest służenie rozwojowi biotechnologii w Polsce w celu przyspieszenia postępu naukowego, gospodarczego i społecznego kraju przez stworzenie krajowej platformy skoordynowanych działań w obszarze badań, wdrożeń, edukacji i produkcji biotechnologicznej.

**POLISH FEDERATION OF BIOTECHNOLOGY**

Polish Federation of Biotechnology (an independent non-profit organisation) was established in September 2004. Since then, it became a new platform for progression and popularization of biotechnology achievements in Poland. The mission of Federation is to stimulate biotechnology development in order to improve scientific, economic and social progress in our country. PFB is dedicated to coordinate various R&D, education and production activities, as far as biotechnology is concerned.

**stand**

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**PROMEGA GmbH**

**68199 Mannheim, Germany**  
**Schildkrötstraße 15**  
**tel. (+48-22) 531-06-67**  
**fax (+48-22) 531-06-69**  
**pl\_custserv@promega.com**  
**www.promega.com**


Promega jest liderem wśród dostawców innowacyjnych rozwiązań w dziedzinie Life Science. 2000 produktów w portfolio firmy umożliwiają naukowcom na całym świecie zaawansowane badania w zakresie genomiki, proteomiki i analizy komórkowej. Produkty Promega są również wykorzystywane w obszarze diagnostyki molekularnej i identyfikacji genetycznej człowieka. Założona w 1978 roku firma Promega z siedzibą główną w Madison (Wisconsin, USA) ma swoje oddziały w 15 krajach oraz ponad 50 dystrybutorów w różnych częściach świata. Produkty Promega to kity, odczynniki oraz zintegrowane rozwiązania niezbędne do badań w dziedzinie Life Science i rozwoju leków.

Promega is a leader in providing innovative solutions and technical support to the life sciences industry. Promega Corporation's 2,000 products enable scientists worldwide to advance their research in the life sciences, particularly in genomics, proteomics, and cellular analysis. Promega products are also used to support molecular diagnostics and human identification. Founded in 1978, Promega Corporation is headquartered in Madison, Wisconsin, USA, with branches in 15 countries and over 50 global distributors. Promega's products consist of kits and reagents as well as Integrated Solutions for life sciences research and drug discovery.

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**„SHIM-POL  
A. M. BORZYMOWSKI”  
E. Borzymowska-Reszka,  
A. Reszka Sp. j.**

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**05-080 Izabelin  
ul. Lubomirskiego 5  
tel. (+48-22) 722-70-48  
fax (+48-22) 722-70-51  
[www.shim-pol.pl](http://www.shim-pol.pl)**

Firma „SHIM-POL A. M. Borzymowski” E. Borzymowska-Reszka, A. Reszka Spółka Jawna jest wyłącznym przedstawicielem w Polsce koncernu Shimadzu w zakresie sprzedaży aparatury kontrolno-pomiarowej stosowanej do analizy chemicznej w laboratoriach chemicznych, biologicznych, farmaceutycznych, medycznych oraz w laboratoriach ochrony środowiska.

Oferujemy Państwu chromatografy UHPLC, HPLC, GC; spektrofotometry UV-Vis, FTIR, RF i AAS; spektrometry mas typu GC-MS, LC-MS/MS, LCMS-IT-TOF oraz MALDI-TOF-TOF; analizatory TOC – węgla organicznego i azotu w roztworach i ciałach stałych.

Firma Shimadzu jest liderem w produkcji ultraszybkich spektrometrów mas typu potrójny kwadrupol. Przyrządy LC-MS/MS 8030 i 8040 są jedynymi przyrządami w pełni przystosowanymi do szybkiej chromatografii UHPLC pozwalają bowiem na zbieranie danych z szybkością 15000 Da/s bez utraty rozdzielczości oraz o ultraszybka zmianę polaryzacji w 15 ms. Natomiast model LC-MS/MS 8030 jest liderem na rynku w zakresie uzyskiwanych czułości. Z myślą o laboratoriach kryminalistycznych firma Shimadzu dla swoich spektrometrów mas proponuje bibliotekę wraz z pakietem metod analitycznych dedykowaną do tego typu laboratoriów.

Oferujemy również spektroskopy do analizy powierzchni takie jak ESCA-XPS, SIMS, ISS i Auger’a, oraz analizatory fluorescencji rentgenowskiej (EDX).



Całość oferty uzupełnia sprzęt takich firm jak ANTEC: detektory elektrochemiczne i elektrochemiczny reaktor ROXY, Phenomenex: kolumny do HPLC, GC, kolumnienki do SPE oraz akcesoria chromatograficzne; Rheodyne: zawory, Chromacol: fiołki, filtry strzykawkowe; Peak Scientific: generatory gazu oraz Pike Technologies: akcesoria FTIR oraz spektrofotometryczne.

Posiadamy w Polsce rozbudowaną autoryzowaną sieć serwisową (Warszawa, Kraków, Lublin, Bydgoszcz, Wrocław, Poznań).

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~~SIGMA-ALDRICH~~ **SIGMA-ALDRICH Sp. z o.o.**

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**61-626 Poznań  
Szegowska 30  
tel. (+48-61) 829-01-00  
fax (+48-61) 829-01-20  
biuro@sial.com  
www.sigmaaldrich.com**

Sigma-Aldrich Sp. z o.o. jest jednym z 40-tu oddziałów Korporacji Sigma-Aldrich na świecie – jednego z największych producentów i dostawców 85 000 odczynników chemicznych, analitycznych, biochemikaliów i akcesoriów do wszystkich rodzajów chromatografii, 15 000 produktów z zakresu sprzętu laboratoryjnego oraz surowców chemicznych swoich renomowanych marek: Sigma, Aldrich, Fluka, Supelco, Cerilliant i Isotec.

Biochemikalia, synteza oligonukleotydów, odczynniki chemiczne i ich zestawy do badań w naukach przyrodniczych, biomedycznych oraz w wysoko rozwiniętych technologiach.

Sigma-Aldrich is a leading Life Science and High Technology company committed to Enabling Science to Improve the Quality of Life. Its chemical and biochemical products and kits are used in scientific research, biotechnology, pharmaceutical development and other high technology manufacturing. Over one million scientists and technologists use its products. Sigma-Aldrich operates in 40 countries and has 9,000 employees providing excellent service worldwide.

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**00-950 Warszawa  
Al. Niepodległości 188/192  
tel. (+48-22) 579-00-00  
fax (+48-22) 579-00-01  
[www.uprp.pl](http://www.uprp.pl)**

Urząd Patentowy Rzeczypospolitej Polskiej, wypełniając szeroki zakres zadań dotyczących ochrony własności przemysłowej, jest jedną z kluczowych instytucji związanych z działaniami na rzecz rozwoju innowacyjnej gospodarki.

Do zadań Urzędu należy w szczególności:

- przyjmowanie i badanie zgłoszeń oraz orzekanie w sprawach o udzielenie ochrony na wynalazki, znaki towarowe, wzory użytkowe, wzory przemysłowe, oznaczenia geograficzne oraz topografie układów scalonych;
- rozstrzyganie spraw w postępowaniu spornym;
- prowadzenie publicznie dostępnych rejestrów zawierających informacje na temat stanu prawnego przedmiotów własności przemysłowej chronionych na terytorium Polski na mocy przepisów krajowych;
- udział w pracach organów międzynarodowych w związku z przynależnością Rzeczypospolitej Polskiej do Światowej Organizacji Własności Intelektualnej, Unii Europejskiej, Europejskiej Organizacji Patentowej, Konwencji paryskiej o ochronie własności przemysłowej oraz innych umów międzynarodowych.

**stand**  
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**WOJEWÓDZTWO  
MAŁOPOLSKIE – CENTRUM  
BUSINESS IN MAŁOPOLSKA**

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**Siedziba Centrum Business in Małopolska**  
**31-864 Kraków**  
**al. Jana Pawła II 41 L**  
**tel. (+48-12) 620-91-45**  
**fax (+48-12) 620-91-66**  
**[kontakt@businessinmalopolska.com](mailto:kontakt@businessinmalopolska.com)**  
**[www.businessinmalopolska.com](http://www.businessinmalopolska.com)**

Województwo Małopolskie to region, który może poszczycić się wysokim poziomem rozwoju gospodarczego, stale rozwijającą się innowacyjnością, obecnością sektora wysokich technologii. Małopolska otwarta jest na inwestorów, którzy coraz chętniej lokują tutaj swoje firmy. To dlatego w roku 2009 z inicjatywy Województwa Małopolskiego, Małopolskiej Agencji Rozwoju Regionalnego S.A. oraz Krakowskiego Parku Technologicznego Sp. z o.o. powołano Centrum Business in Małopolska (CEBiM). W 2011 roku do CeBiM dołączyły także Małopolskie Parki Przemysłowe Sp. z o.o. Głównym celem CEBiM jest pozyskiwanie nowych inwestycji zagranicznych w regionie oraz wsparcie rozwoju międzynarodowej wymiany handlowej przedsiębiorstw z Małopolski. W ramach realizowanych projektów CeBiM przygotowuje bieżące analizy regionalnego rynku pracy, rynku nieruchomości, sektora BPO oraz nowoczesnych technologii i branży badawczo-rozwojowej. CeBiM jest regionalnym partnerem Polskiej Agencji Informacji i Inwestycji Zagranicznych, posiada międzynarodową sieć kontaktów instytucjonalnych i partnerów biznesowych.