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2nd Summer School in Natural Products Research

Program

FUNDED BY:



Bundesministerium
für Forschung, Technologie
und Raumfahrt

Day 1. 9th August

- 09:00 AM - 10:00 AM **Participants registration**
- 10:00 AM - 11:30 AM **Participants introduction**
- 12:00 AM - 01:00 PM **Lunch**
- 01:00 PM - 07:00 PM **Transfer to 'Shepilska' relax complex**
(+ Kamianka waterfall)
- 07:00 PM - 08:00 PM **Checking into a hotel**
- 08:00 PM **Dinner**

Day 2. 10th August

- 09:00 AM - 09:45 AM **Breakfast**
- 10:00 AM - 11:00 AM **Dr. Nataliia Machushynets**
(Leiden University, *Netherlands*)
"Classes of Bacterial Natural Products and Their Biosynthetic Logic"
- 11:00 AM - 12:00 PM **Dr. Kai Blin** (Novo Nordisk Foundation Center for Biosustainability, Technical University of Denmark, *Denmark*)
"Introduction to the antiSMASH Ecosystem"
- 12:00 PM - 01:00 PM **Dr. Stefan Böttcher** (Saarland University, *Germany*)
"Structure Elucidation of Natural Compounds by the Use of Modern Spectroscopical Methods"
- 01:00 PM - 02:00 PM **Lunch**
- 02:00 PM - 03:00 PM **Prof. Dr. Bohdan Ostash** (CENTR, *Ukraine*)
 - Workshop: How to Work with antiSMASH Data
- 03:00 PM - 04:30 PM **Dr. Stepan Tistechok** (CENTR, *Ukraine*)
 - Workshop: How to Work with LC-MS Data
 - Tasks distribution
- 07:00 PM **Dinner**



Day 3. 11th August

- 09:00 AM - 09:45 AM

Breakfast

- 10:00 AM - 11:00 AM

Prof. Dr. Andriy Luzhetskyy

(Saarland University, Germany)

“Natural products - Quo vadis”

- 11:00 AM - 12:00 PM

Prof. Dr. Justyna Ruchała

(University of Rzeszow, Poland)

“Hidden Yeasts in Extreme Environments:
How to Discover New Cell Factories”

- 12:00 PM - 12:45 PM

Dr. Anna Kachor & Andriy Zatushevskyy

(CENTR, Ukraine)

“Actinobacteria: from biology to case studies”

- 12:45 PM - 01:15 PM

Yana Nohach (CENTR, Ukraine)

“Vector system for
Saccharopolyspora erythraea”

- 01:15 PM - 02:00 PM

Lunch

- 02:15 PM - 03:00 PM

Prof. Dr. Peter Leadlay

(University of Cambridge, United Kingdom)

“Evolution and Revolution in
Natural Product Biosynthesis”

- 03:00 PM - 04:00 PM

Dr. Taras Peretyatko

*(Ivan Franko Lviv National University; National
Antarctic Scientific Center, Ukraine)*

“Antarctic microorganisms and their
biotechnological potential, field and laboratory
research”

- 04:00 PM - 05:00 PM

Dr. Rebecca Casson

(John Innes Centre, United Kingdom)

“Nature’s Chemists: The Plant Medicine Toolbox”

- 07:00 PM

Dinner



Day 4 . 12th August

• 09:00 AM - 09:45 AM

Breakfast

• 10:00 AM - 11:00 AM

Prof. Dr. Hajo Kries

(University of Stuttgart, Germany)

“Biosynthetic Engineering of
Nonribosomal Peptides”

• 11:00 AM - 12:00 PM

Dr. Jennifer Herrmann

(HIPS, Germany)

“Antibiotic development: from
compound to pre-clinical studies”

• 12:00 PM - 12:45 PM

Dr. Bohdan Tokovenko

(BASF, Germany)

“The Academic and Industrial Science”

• 12:45 PM - 01:30 PM

Panel Discussion: From Academia to Industry

- Dr. Bohdan Tokovenko
(BASF, Germany),
- Dr. Oksana Bilyk
(Recircle, United Kingdom)
- Viktoriia Vonsovykh
(University of Bonn, Germany)

Moderator: Nadiia Lekhniuk *(CENTR, Ukraine)*

• 01:30 PM - 02:30 PM

Lunch

• 02:30 PM - 07:00 PM

Transfer to Lviv

(+ Tustan Fortress)

• 07:30 PM

Dinner



Day 5. 13th August

- 07:30 AM - 08:30 AM

Breakfast

- 09:00 AM - 01:00 PM

- **Strain characterization:**
Isolation of the total DNA from Actinobacteria
- **Gene cloning:**
pUC57 vector preparation

- 01:00 PM - 02:00 PM

Lunch

- 02:00 PM - 06:30 PM

- **Gene cloning:**
Insert ligation into pUC57;
E. coli transformation
- **Strain characterization:**
Antimicrobial activity test
by agar plugs diffusion

- 07:00 PM

Dinner

Notes:

Day 6. 14th August

- 07:30 AM - 08:30 AM

- 09:00 AM - 01:00 PM

- 01:00 PM - 02:00 PM

- 02:00 PM - 06:30 PM

- 07:00 PM

Breakfast

- **Strain characterization:**

Setting up PCR;

Analysis of the antimicrobial activity

- **Metabolites analysis:**

Extraction of *Streptomyces* cultures

Lunch

- **Strain characterization:**

Purification of PCR products;

Setting up DNA sequencing by Sanger

- **Gene cloning:**

Inoculation of *E.coli*

- **Metabolites analysis:**

Extracts evaporation;

Antimicrobial activity test

by disc diffusion

Dinner

Notes:



Day 7. 15th August

- 07:30 AM - 08:30 AM

- 09:00 AM - 01:00 PM

- 01:00 PM - 02:00 PM

- 02:00 PM - 06:30 PM

- 07:00 PM

Breakfast

- **Gene cloning:**

Isolation of plasmid DNA;
Restriction analysis

- **Metabolites analysis:**

Antimicrobial activity assessment

Lunch

- **Strain characterization:**

Workshop on reading the
sequencing results

- **Metabolites analysis:**

Setting up Thin Layer
Chromatography (TLC);
TLC overlaying with test cultures

Dinner

Notes:

Day 8. 16th August

• 07:30 AM - 08:30 AM

Breakfast

• 09:00 AM - 01:00 PM

- **Metabolites analysis:**
TLC results analysis
- **Workshop results presentation:**
Part 1

• 01:00 PM - 02:00 PM

Lunch

• 02:00 PM - 03:30 PM

- **Workshop results presentation:**
Part 2

**Closing of the summer school,
Awarding of certificates**

Notes:



GERMAN-UKRAINIAN
CORE OF EXCELLENCE IN NATURAL
PRODUCTS RESEARCH

- Explogen LLC
- Ivan Franko National University of Lviv
- Saarland University
- Helmholtz Institute for Pharmaceutical Research Saarland (HIPS)



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