



**XV Congress of Microbiologists
in Bulgaria with International Participation
Koprivshitsa, Bulgaria
October 5th – 8th, 2022**

Congress Sections

Covid-19

General and Applied Microbiology (GAM)

Medical Microbiology (MM)

Veterinary Microbiology (VM)

Environmental Microbiology (EM)

Virology (V)

Food Microbiology (FM)

Infectious Immunology (II)

General Program

Wednesday, October 5th, 2022

**Transport Sofia – Koprivshitsa
10:00 – 15:00**

Registration

Onset 14:00

18:30 - Opening ceremony

19:00 - Inaugural lecture

20:00 - Welcome Reception

Thursday, October 6th, 2022

9:00 – 18:00 Congress sessions

18:00 – 19:00 Poster session

Friday, October 7th, 2022

9:00 – 18:00 Congress sessions

18:00 – 19:00 Poster session

Saturday, October 8th, 2022

8:30 – 13:00 Congress sessions

13:00 - Congress Adjourn

Social Events

Wednesday – Friday, October 5th – 8th, 2022

Art Exhibitions

Thursday, October 6th, 2022

Tour of the historical town Koprivshitsa

Friday, October 7th, 2022

20:00 Congress Gala Dinner

PROGRAM

Wednesday, October 5th, 2022
Old School

14:00 **Registration**

18:00 **Congress Opening ceremony**

Angel Galabov, President of the BSM – Congress Opening speech

Congratulatory Addresses

18:30 ***Inaugural lecture***

**The development of molecular tools for the optimization of
Bacillus protein secretion**

Colin Harwood

Centre for Bacterial Cell Biology, Newcastle University, UK; Treasurer of FEMS

Thursday, October 6th, 2022

Old School

9:30-10:00 **Two hundred years Anniversary of Louis Pasteur**
Hristo Najdenski
The Stephan Angeloff Institute of Microbiology, Bulgarian Academy of Sciences, Sofia

Session One (10:00 – 15:00) [Coffee break 11:00 – 11:30]

COVID 19

Chairs: Iva Christova, Athanasios Tsakris

Plenary lectures

10:00-10:30 **Covid1** **Drug resistant septicemic *Escherichia coli* – impact in hospital-acquired infections and during the COVID pandemic**
Eliona Ron
President of IUMS, General Secretary of EAM, Tel-Aviv University, Tel-Aviv, Israel

10:30-11:00 **Covid2** **Molecular-epidemiological, virological and immunological studies on SARS-CoV-2 in Bulgaria (2020-2022)**
Iva Christova, Ivan Ivanov, Ivaylo Alexiev, Nelly Korsun, Maria Nikolova
National Center of Infectious and Parasitic Diseases, Sofia

Coffee break 11:00 – 11:30

11:30-12:00 **Covid3** **Challenges of SARS-CoV-2 diagnostic tests**
A. Arzu Sayner
Department of Medical Microbiology, Medical Faculty, Dokuz Eylul University, Izmir

12:00-12:30 **Covid4** **SARS CoV 2 virus: rationales of introduction of cocktail antibody**
Andi Koraqi, Denada Lacej, Rovena Dhroso
¹Department of Microbiology, University of Medicine, Tirana; University Hospital Center “Mother Theresa”, Tirana

12:30-13:00 Covid5 Vaccinations, infections, and reinfections: Can we break the cycle of SARS-CoV-2
Athanasios Tsakris
Department of Microbiology, Medical School, University of Athens, Athens

Lunch break 13:00 -14:00

14:00-14:30 Covid6 Generation and characterisation of molecular tools for the study of host immune responses in SARS-CoV-2 infection
Pelagia Foka
Molecular Virology Laboratory, Hellenic Pasteur Institute, Athens

Oral reports

14:30-14:40 Covid7 Accuracy comparison between ELISA and rapid antibody tests in the diagnostics of SARS-CoV-2 infection
Lyubomir Gaydarski², Ivo Sirakov¹, Tanja Strateva¹, Dimitar Bakalov³, Yeshaa Mirani², Petja Stankova¹, Nikolay Kalvatchev¹, Raina Gergova¹

¹Department of Medical Microbiology, Faculty of Medicine, Medical University of Sofia; ²Faculty of Medicine, Medical University of Sofi, Sofia; ³Department of Physiology and Pathophysiology, Faculty of Medicine, Medical University of Sofia, Sofia

Session Two (15:00 – 18:30)

General and Applied Microbiology

Chairs: Penka Petrova, Colin Harwood

Plenary lectures

15:00-15:30 GAM1 Profiling the abysso-hadal prokaryotic communities of the Kuril Kamchatka Trench by a metabarcoding approach

Massimiliano Fenice^{1,2}, Marcella Pasqualetti^{1,3}, Susanna Gorrasi¹

¹Laboratory of Microbiology, Department of Ecological and Biological Sciences, University of Tuscia, Viterbo, Italy; ²Laboratory of Applied Marine Microbiology - CoNISMa, Department of Ecological and Biological Sciences, University of Tuscia, Viterbo, Italy; ³Laboratory of Ecology of Marine Fungi - CoNISMa, Department of Ecological and Biological Sciences, University of Tuscia, Viterbo, Italy

15:30-16:00 GAM2 Can industrial microbiology provide sustainable alternatives to our slave-like dependence on fossil resources?

Jean Marie François

Toulouse Biotechnology Institute & Toulouse White Biotechnology Center, INSA-CNRS-INRAe 31077-Toulouse

Coffee break 16:00 – 16:30

16:30-17:00 GAM3 Physiologically based *in vitro* model to predict the probiotic potential of different lactobacillus strains in combination of natural bioactive substances

Iliia Iliev, Tonka Vasileva, Veselin Bivolarski, Mariana Nikolova, Daniela Mollova, Ivica Dimov

¹Department of Biochemistry and Microbiology, Faculty of Biology, Plovdiv University “Paisii Hilendarski”, Plovdiv; ²Centre of Technologies, Plovdiv University “Paisii Hilendarski”, Plovdiv

17:00-17:30 GAM4 Mechanism of action of antimicrobial peptides from the mucus of the snail *Cornu aspersum*

Pavlina Dolashka¹, Lyudmila Velkova¹, Aleksandar Dolashki¹, Karina Marinova¹, Peter Petrov¹, Ventsseslav Atanasov¹, Dimiter Kaynarov¹, Nevena Ilieva², Elena Lilkova², Momchil Kermedchiev³, Mihaela Belouhova⁴, Maya Zaharieva⁵, Ekaterina Krumova⁵, Yana Topalova⁴, Hristo Naydenski⁵, Maria Angelova⁵, Leandar Litov⁶, Peicho Petkov⁶

¹*Institute of Organic Chemistry with Centre of Phytochemistry, Bulgarian Academy of Science*; ²*Institute of Information and Communication Technologies, Bulgarian Academy of Sciences*; ³*University hospital Alexandrovska, Sofia*; ⁴*Faculty of Biology, Sofia University, Sofia*; ⁵*The Stephan Angeloff Institute of Microbiology, Bulgarian Academy of Sciences, Sofia*; ⁶*Faculty of Physics, Sofia University, Sofia*

Oral reports

17:30-17:40 GAM5 Biodiversity of marine fungi and their potential in biotechnology

Marcella Pasqualetti^{1,2}, Massimiliano Fenice^{1,3}, Martina Braconcini¹ and Susanna Gorrasi¹

¹*Laboratory of Microbiology, Department of Ecological and Biological Sciences, University of Tuscia, Viterbo, Italy*; ²*Laboratory of Ecology of Marine Fungi - CoNISMa, Department of Ecological and Biological Sciences, University of Tuscia, Viterbo, Italy*; ³*Laboratory of Applied Marine Microbiology - CoNISMa, Department of Ecological and Biological Sciences, University of Tuscia, Viterbo, Italy*

17:40-17:50 GAM6 Localization in relation to function of sialidases in prokaryotes and eukaryotes

Roumyana Eneva, Stephan Engibarov, Radoslav Abrashev, Ekaterina Krumova, Yana Gocheva, Vera Kolyovska, Maria Angelova

¹*The Stephan Angeloff Institute of Microbiology, Bulgarian Academy of Sciences, Sofia*; ²*Institute of Experimental Morphology, Pathology and Anthropology with Museum, Bulgarian Academy of Sciences, Sofia*

17:50-18:00 GAM7 Antibacterial effect of metal nanoparticles synthesized from plant extracts

Karina Marinova¹, Petar Petrov¹, Valentina Lyubomirova², Bogdan Rangelov³, Stela Atanasova³, Aleksandar Dolashki¹, Lyudmila Velkova¹, Pavlina Dolashka¹

¹*Institute of Organic Chemistry with Centre of Phytochemistry, Bulgarian Academy of Science*; ²*Faculty of Chemistry and Pharmacy, University of Sofia*; ³*Institute of Physical Chemistry "Acad. Rostislav Kaischew", Bulgarian Academy of Sciences*

- 18:00-18:10 GAM8 Cell response to cold stress in Antarctic fungus**
Penicillium gryseofulvum
Vladislava Dishliyska¹, Galina Stoyancheva², Radoslav Abrashev¹,
Jeny Miteva-Staleva¹, Boryana Spasova¹, Maria Angelova¹,
Ekaterina Krumova¹
¹*Department of Mycology, The StephanAngeloff Institute of Microbiology,
Bulgarian Academy of Sciences, Sofia;* ²*Department of General Microbiology, The
Stephan Angeloff Institute of Microbiology, Bulgarian Academy of Sciences, Sofia*
- 18:10-18:20 GAM9 Enzyme profile of lactic acid bacteria strains isolated
from breast milk**
Daniela Mollova, Tonka Vasileva, Veselin Bivolarski, Ilia Iliev
*Department of Biochemistry and Microbiology, Faculty of Biology, Plovdiv
University "Paisii Hilendarski", Plovdiv*
- 18:20-18:30 GAM10 New Beta-galactosidases from lactic acid bacteria**
Ivan Ivanov¹, Alexander Arsov¹, Penka Petrova¹, Kaloyan Petrov²
¹*The Stephan Angeloff Institute of Microbiology, Bulgarian Academy of Sciences,
Sofia;* ²*Institute of Chemical Engineering, Bulgarian Academy of Sciences, Sofia*

Poster Session One (18:00 – 19:00)

GAM, MM, VM

Chairs: Lyubka Doumanova, Marchella Pasqualetti, Petya Orozova, Radoslav Abrashev

General and Applied Microbiology (GAM)

- GAM11 Cloning and expression of inulinase gene in 2,3-butanediol producing *Bacillus licheniformis* 24**
Lidia Tsigoriyna¹, Alexander Arsov², Penka Petrova², Kaloyan Petrov¹
¹*Institute of Chemical Engineering, Bulgarian Academy of Sciences, Sofia;* ²*The Stephan Angeloff Institute of Microbiology, Bulgarian Academy of Sciences, Sofia*
- GAM12 Optimization of the enzyme production of mutant glucosyltransferase URE 13-300 in recombinant strain *Escherichia coli* BL21**
Stanimira Angelova¹, Tonka Vasileva¹, Veselin Bivolarski¹, Ilia Iliev^{1,2}
¹*Department of Biochemistry and Microbiology, Faculty of Biology, Plovdiv University “Paisii Hilendarski”, Plovdiv;* ²*Centre of Technologies, Plovdiv University “Paisii Hilendarski”, Plovdiv*
- GAM13 Characterisation of glucansucrases producing *Leuconostoc mesenteroides* strains isolated from kefir**
Tonka Vasileva¹, Veselin Bivolarski¹, Iskra Ivanova³, Penka Moncheva³, Stanimira Angelova¹, Ilia Iliev^{1,2}
¹*Department of Biochemistry and Microbiology, Faculty of Biology Plovdiv University “Paisii Hilendarski”, Plovdiv;* ²*Centre of Technologies, Plovdiv University, Plovdiv;* ³*Department of General and Industrial Microbiology, Faculty of Biology, Sofia University “St. Kliment Ohridski”, Sofia*
- GAM14 Bacteriophage seed coating as prevention approach in combating *Xanthomonas euvesicatoria*-associated plant diseases**
Melani Dimitrova, Yoana Kizheva, Iliyana Rasheva, Petya Hristova
Faculty of Biology, Sofia University “St. Kliment Ohridski”, Sofia
- GAM15 Sesquiterpene lactones with promising inhibitory effects on bacterial quorum sensing and biofilm formation in gram negative and gram-positive bacteria**
Petya D. Dimitrova¹ Tsvetozara Damyanova¹, Milka Todorova², Miroslav Rangelov², Nadezhda Todorova³, Antoaneta Trendafilova², Tsvetelina Paunova-Krasteva¹
¹*The Stephan Angeloff Institute of Microbiology, Bulgarian Academy of Sciences, Sofia;* ²*Institute of Organic Chemistry with Centre of Phytochemistry, Bulgarian Academy of Sciences, Sofia;* ³*Institute of Biodiversity and Ecosystem Research, Bulgarian Academy of Sciences, Sofia*

- GAM16** *Inula britannica* L. extracts as natural inhibitors for control of bacterial virulence factors
 Petya D. Dimitrova¹, Viktoria Ivanova², Antoaneta Trendafilova², Tsvetozara Damyanova¹, Dayana Borisova¹, Tsvetelina Paunova-Krasteva¹
¹The Stephan Angeloff Institute of Microbiology, Bulgarian Academy of Sciences, Sofia; ²Institute of Organic chemistry with Centre of Phytochemistry, Bulgarian Academy of Sciences, Sofia
- GAM17** Inhibitory capacity of *Lactobacillus* postbiotics on biofilm formation and quorum sensing activity
 Petya Dimitrova, Lili Dobreva, Tsvetozara Damyanova, Svetla Danova, Tsvetelina Paunova-Krasteva
 Department of general Microbiology, The Stephan Angeloff Institute of Microbiology, Bulgarian Academy of Sciences, Bulgaria, a member of the International Network of the Institutes Pasteur
- GAM18** Mixed polymeric micelles loaded with ciprofloxacin for the treatment of *Staphylococcus aureus* biofilm infections
 Tsvetozara Damyanova¹, Tsvetelina Paunova-Krasteva¹, Milena Leseva¹ Rumena Stancheva², Petya D. Dimitrova¹, Emi Haladjova², Petya A. Dimitrova¹, Stoyanka Stoitsova¹
¹The Stephan Angeloff Institute of Microbiology, Bulgarian Academy of Sciences, Sofia; ²Institute of Polymers, Bulgarian Academy of Sciences, Sofia
- GAM19** Cellular effects on *Saccharomyces cerevisiae* of chitosan-ferric oxide nanocomposites doped with Cu²⁺
 Tsvetozara Damyanova*¹, Tsvetelina Paunova-Krasteva¹, Amany M. El Nahrawy², Petya D. Dimitrova¹, Mohamed Azab El-Liethy⁴, Gamila E. El-Taweel⁴, Bahaa A. Hemdan⁴, Stoyanka Stoitsova¹
¹The Stephan Angeloff Institute of Microbiology, Bulgarian Academy of Sciences, Sofia; ²Solid-State Physics Department, National Research Centre, 33 El-Bohouth St., Dokki, Giza 12622, Egypt; ³Water Pollution Research Department, National Research Centre, 33 El-Bohouth St., Dokki, Giza 12622, Egypt
- GAM20** Candidate-probiotic strains from traditional Bulgarian product “Katak”
 Lili Dobreva¹, Petya Dimitrova¹, Tsvetozara Damyanova¹, Tsvetelina Paunova-Krasteva¹ Miglena Koprinarova², Vanya Velkova¹, Svetla Danova¹
¹The Stephan Angeloff Institute of Microbiology, Bulgarian Academy of Sciences, Sofia; ²The Institute of Molecular Biology „Acad. Roumen Tsanev”, Bulgarian Academy of Sciences, Sofia
- GAM21** Plant-associated lactic acid bacteria – potential for application
 Tsvetanka Teneva-Angelova
 Laboratory of Cell Biosystems Department of Biotechnology, The Stephan Angeloff Institute of Microbiology, Bulgarian Academy of Sciences, Plovdiv
- GAM22** Effect of lysates from plant-associated bacteria on secondary metabolite profiles of *Salvia ringens* adventitious roots culture
 Tsvetanka Teneva-Angelova, Vasil Georgiev
 Laboratory of Cell Biosystems Department of Biotechnology, The Stephan Angeloff Institute of Microbiology, Bulgarian Academy of Sciences, Plovdiv

GAM23 Isolation and identification of lactic acid bacteria from infant faeces

Sandra Stanimirov¹, Melani Dimitrova¹, Maria Pandova¹, Radoslav Rangelov², Yoana Kizheva¹, Petya Hristova¹, Iliyana Rasheva^{1*}

¹Department of General and Industrial Microbiology, Biological Faculty, Sofia University "St. Kliment Ohridski"; ²Vita Hospital, Sofia

GAM24 Diversity of the cloacal aerobic bacterial flora of free-living lizards from Ihtimanska Sredna Gora

Irina Lazarkevich¹, Stefan Engibarov¹, Simona Mitova¹, Emilyia Vacheva², Nickola Stanchev³, Steliyana Popova³

¹The Stephan Angeloff Institute of Microbiology, Bulgarian Academy of Sciences; ²Institute of Biodiversity and Ecosystem Research, Bulgarian Academy of Sciences; ³Faculty of Biology, Sofia University „St Kliment Ohridski”

GAM25 Chemical composition and antimicrobial activity of essential oils from Bulgarian *Epilobium parviflorum* Schreb

Tzenka Radoukova¹, Yovko Dyulgerski², Ivelina Zapryanova³

¹Department of Botany and Biological education, Faculty of Biology, University of Plovdiv "Paisii Hilendarski", Plovdiv; ²Tobacco and Tobacco Products Institute, Markovo, Bulgaria; ³Department of Animal science, Agricultural Faculty, Agricultural University, Plovdiv

Medical Microbiology (MM)

MM12 Antimicrobial effect of siloxane coatings with antioxidants

Desislava Petkova Boteva¹, Kalina Emil Ivanova¹, Todorka G. Vladkova³, Iliana Atanassova Ivanova²

¹Bachelor degree in Molecular Biology 2022, Sofia University "St. Kliment Ohridski"; ²Department General and Industrial Microbiology, Faculty of Biology, Sofia University "St. Kliment Ohridski", Sofia; ³University of Chemical Technology and Metallurgy, Sofia

MM13 PCR analysis for *Mycobacterium tuberculosis* complex shows negative results in sarcoid samples

B. Tsafarova¹, Y. Hodzhev¹, V. Tolchkov¹, V. Youroucova², S. Ivanova², D. Kostadinov², N. Yanev², S. Panaiotov¹

¹National Center of Infectious and Parasitic Diseases, Sofia; ²Department of Pulmonary Disease, Medical Faculty, Medical University of Sofia, Sofia

MM14 Antimicrobial effect of magnetic nanoceramics

Kalina Emil Ivanova¹, Desislava Petkova Boteva¹, Iliana Atanassova Ivanova², Peter Georgiev³

¹Bachelor degree in Molecular Biology 2022, Sofia University "St. Kliment Ohridski"; ²Department of General and Industrial Microbiology, Faculty of Biology, Sofia University St. Kliment Ohridski"; ³Faculty of Physics, Sofia University "St. Kliment Ohridski"

MM15 Effects of autochthonous (wild) *Lactocaseibacillus paracasei* strains on ALP activity in non-differentiated and differentiated human colorectal adenocarcinoma HT 29 cells

Valeria Petrova¹, Natalia Grigorova¹, Zhenya Ivanova¹, Daniela Stoeva³, Georgi Beev², Eaterina Vachkova¹

¹Department of Pharmacology, Animal Physiology and Physiological Chemistry, Faculty of Veterinary Medicine, Trakia University, Stara Zagora; ²Department of Biochemistry, Microbiology and Physicmicrobiology, Faculty of Agriculture, Trakia University, Stara Zagora; ³Central Scientific and Research Laboratory, Trakia University, Stara Zagora

MM16 Autochthonous *Lactocaseibacillus paracasei* strains enhance glucose uptake in mature 3T3-L1 adipocytes

Zhenya Ivanova¹, Ekaterina Vachkova¹, Valeria Petrova¹, Daniela Stoeva³, Georgi Beev², Natalia Grigorova¹

¹Department of Pharmacology, Animal Physiology and Physiological Chemistry, Faculty of Veterinary Medicine, Trakia University, Stara Zagora; ²Department of Biochemistry, Microbiology and Physicmicrobiology, Faculty of Agriculture, Trakia University, Stara Zagora; ³Central Scientific and Research Laboratory, Trakia University, Stara Zagora

Veterinary Microbiology (VM)

VM7 Therapeutic effect of electrochemically activated aqueous solutions for the treatment of infections of various origins in dogs

Toshka Petrova^{1*}, Milko Petrov², Mila Kaleva^{3,4,*}, Teodora Popova¹, Ignat Ignatov⁵, Hristo Najdenski³

**These authors contributed equally*

¹Department of Infectious Pathology, Hygiene, Technology and Control of Food of Animal Origin, Faculty of Veterinary Medicine, University of Forestry, Sofia; ²Veterinary Clinic "Dr. Milko Petrov" Sofia; ³Department of Infectious Microbiology, The Stephan Angeloff Institute of Microbiology, Bulgarian Academy of Sciences, Sofia; ⁴Veterinary Clinic "Union Vet", Sofia; ⁵Scientific Research Center of Medical Biophysics, Sofia

VM8 Detection of some genes encoding antibiotic resistance among *Staphylococcus aureus* isolates from cows with mastitis in Bulgaria

Nikolina Velizarova Rusenova^{1*}, Nasko Yovchev Vasilev², Anton Georgiev Rusenov³, Aneliya Milanova Milanova⁴, Ivo Nikolaev Sirakov⁵

¹Department of Veterinary Microbiology, Infectious and Parasitic Diseases, Faculty of Veterinary Medicine, Trakia University, Stara Zagora; ²Department of Obstetrics, Reproduction and Reproductive Disorders, Faculty of Veterinary Medicine, Trakia University, Stara Zagora; ³Department of Internal Noninfectious Diseases, Faculty of Veterinary Medicine, Trakia University, Stara Zagora; ⁴Department of Pharmacology, Animal Physiology and Physiological Chemistry, Faculty of Veterinary Medicine, Trakia University, Stara Zagora; ⁵Department of Medical Microbiology, Faculty of Medicine, Medical University of Sofia, Sofia

VM9 Pilot study on the representatives of genus *Vibrio* in the Bulgarian Black Sea area

Petya Orozova, Roumyana Nenova, Iskra Tomova, Ogniana Hristova, Lyudmila Gorjanova, Dimitar Ivanov

¹National Reference Laboratory for Fish, Mollusk and Crustacean Diseases, National Diagnostic and Research Veterinary Medical Institute, Sofia; ²National Reference Laboratory Special Bacterial Pathogens National Center of Infectious and Parasitic Diseases, Sofia; ³Institute of Oceanology, Bulgarian Academy of Sciences, Varna

VM10 Changes in the activity of aspartate-alanine aminotransferase in dogs with experimentally induced *Staphylococcus aureus* infection

Dimitrinka Zapryanova¹, Nikolina Rusenova², Georgi Beev³, Parvan Parvanov², Teodora Mircheva¹, Stefan Denev², Deyan Georgiev⁴

¹Department of Pharmacology, Veterinary Physiology and Physiological Chemistry, Faculty of Veterinary Medicine, Trakia University, Stara Zagora; ²Department of Veterinary Microbiology, Infectious and Parasitic Diseases, Faculty of Veterinary Medicine, Trakia University, Stara Zagora; ³Department of Biochemistry, Microbiology and Physics, Faculty of Agriculture, Trakia University, Stara Zagora; ⁴Department of Biology and Aquaculture, Faculty of Agriculture, Trakia University, Stara Zagora

VM11 *In vitro* antibacterial effect of *Lemna minuta*, *Chlorella vulgaris*, and *Spirulina* sp. extracts against fish pathogen *Aeromonas hydrophila*

Katya Velichkova¹, Ivajlo Sirakov¹, Stefan Denev²

¹Department of Biology and Aquaculture, Faculty of Agriculture, Trakia University, Stara Zagora; ²Department of Biochemistry, Microbiology and Physics, Faculty of Agriculture, Trakia University, Stara Zagora

Friday October 7th, 2022

Old School

Session Three (9:00 – 13:00) [Coffee break 11:00 – 11:30]

Medical Microbiology

Chairs: Marianna Murdjeva, Igor Mokrousov

Plenary lectures

- 9:00-9:30** **MM1** **Epidemic and endemic *Mycobacterium tuberculosis* clusters in Russia: pathobiology and phytogeography**
Igor Mokrousov
St. Petersburg Pasteur Institute, St. Petersburg
- 9:30-10:00** **MM2** **Multiplex PCR for modern syndromic microbiological diagnosis of severe infections**
Mariana Murdjeva^{1,2,3}, Yordan Kalchev^{1,2,3}, Gergana Lengerova^{1,2,3},
Andreana Angelova^{1,2,3}
¹*Department of Medical Microbiology and Immunology „Prof. Dr. Elissay Yanev”, Faculty of Pharmacy, Medical University, Plovdiv;* ²*Laboratory of Microbiology, University Hospital St. George, Plovdiv;* ³*Research Institute at Medical University, Plovdiv*
- 10:00-10:30** **MM3** **Historical review of tuberculosis vaccines in Bulgaria: complete genome sequence, genome stability and phylogeny of the vaccine strain *Mycobacterium bovis* BCG SL222 Sofia**
Stefan Panaiotov¹, Yordan Hodzhev¹, Vladimir Tolchkov¹, Borislava Tsafarova¹, Alexander Mihailov², and Tzvetelina Stefanova²
¹*National Center of Infectious and Parasitic Diseases, Sofia;* ²*BB-NCIPD Ltd., Sofia, Bulgaria*
- 10:30-11:00** **MM4** **Antimicrobial stewardships – parallels**
Emma Keuleyan
University Multi-Profile Hospital “Lozenetz”, Sofia

Coffee break 11:00 – 11:30

11:30-12:00 **MM5** **Targeting glmS and FMN riboswitches with antisense oligonucleotides for antibacterial drug development**
Robert Penchovsky, Martina Traykovska
Faculty of Biology, Sofia University "St. Kliment Ohridski", Sofia

Oral reports

12:00-12:10 **MM6** **Genomic characterization of unusual case of facial necrotizing fasciitis, caused by a novel methicilin-sensitive *Staphylococcus aureus* sequence type (cc398-t1451)**
Ivan N. Ivanov¹, Denis Niyazi², Ivan Stoykov¹, Milena Bozhkova², Borislava Toncheva³, Tsvetan Tonchev³, Deyan Donchev¹, Stefan Lozenov¹, Elina Dobрева¹, Romyana Hristova¹, Temenuga Stoeva²
¹National Reference Laboratory for Control and Monitoring of Antimicrobial Resistance, National Center of Infectious and Parasitic Diseases, Sofia; ²Laboratory of Clinical Microbiology, University Hospital "St. Marina", Varna; ³Maxillofacial Surgery Clinic, University Hospital "St. Marina", Varna

12:10-12:20 **MM7** **Characterization of cefiderocol resistance in multi-drug resistant *Pseudomonas aeruginosa* by whole genome sequencing – preliminary results**
Ivan N. Ivanov¹, Ivan Stoikov¹, Deyan Donchev¹, Elina Dobрева¹, Romyana Hristova¹, Stefan Lozenov¹, Stefana Sabtcheva²
¹National Reference Laboratory for Control and Monitoring of Antimicrobial Resistance, National Center of Infectious and Parasitic Diseases, Sofia; ²National Oncology Center, Sofia

12:20-12:30 **MM8**
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12:30-12:40 **MM9** **Novel composites based on activated carbon and Cu, Ag, and Mg as antibacterial agents**
Marieyta Belcheva¹, Georgi Georgiev², Venelin Hubenov¹, I. Stoycheva², B. Tsyntsarski², Lyudmila Kabaivanova¹
¹The Stephan Angeloff Institute of Microbiology, Bulgarian Academy of Sciences, Sofia, ²Institute of Organic Chemistry with Centre of Phytochemistry, Bulgarian Academy of Sciences, Sofia

12:40-12:50 MM10 Primary multidrug resistance and major clusters of the epidemiologically significant *Mycobacterium tuberculosis* is Beijing genotype in Northwest Russia

Anna Vyazovaya¹, Alena Gerasimova¹, Natalia Solovieva², Viacheslav Zhuravlev², Igor Mokrousov¹

¹St. Petersburg Pasteur Institute, St. Petersburg, Russia; ²St. Petersburg Research Institute of Phthisiopulmonology, St. Petersburg, Russia

12:50-13:00 MM11 Direct identification of *Yersinia pseudotuberculosis* in raw milk by digital droplet PCR and loop mediated isothermal amplification

Maya Zaharieva¹, Tanya Chan Kim¹, Mila Kaleva¹, Lyudmila Dimitrova¹, Yana Ilieva¹, Els van Collie², Mark Heyndrickx², Hristo Najdenski¹

¹Department of Infectious Microbiology, The Stephan Angeloff Institute of Microbiology, Bulgarian Academy of Sciences, Sofia; ²Unit "Food Safety", Institute for Agriculture and Fisheries Research (ILVO), Melle, Belgium

Lunch break 13:00 -14:00

Session Four (14:00 – 18:00) [Coffee break 16:10 – 16:30]

VETERINARY MICROBIOLOGY

Chairs: Hristo Najdenski, Raiko Peshev

Plenary lectures

14:00-14:30 VM1 Role of pig farms in the spreading of antimicrobial resistance

Lyudmila Dimitrova, Maya M. Zaharieva, Mila D. Kaleva, Yana Ilieva, Maya Angelovska, Vesselin Kussovski, Hristo Najdenski
The Stephan Angeloff Institute of Microbiology, Bulgarian Academy of Sciences, Sofia

14:30-15:00 VM2 Studies on herpesvirus infections in ruminants

Raiko Peshev
National Diagnostic and Research Veterinary Medical Institute, "Prof. Dr. G. Pavlov" Sofia

Oral reports

- 15:00-15:10** **VM3** **Isolation of *Flavobacterium psychrophilum* from cultured rainbow trout (*Oncorhynchus mykiss*) in Bulgaria**
Petya Orozova¹, Dimitar Ivanov¹, Ivan Stoykov², Deyan Donchev², Ivan Ivanov²
¹National Reference Laboratory for Fish, Mollusk and Crustacean Diseases, National Diagnostic and Research Veterinary Medical Institute, Sofia;
²National Reference Laboratory for Control and Monitoring of Antimicrobial Resistance, National Center of Infectious and Parasitic Diseases, Sofia
- 15:10-15:20** **VM4** **First isolation and identification of *V. aestuarianus* from the Bulgarian sea area**
Petya Orozova¹, Rumyana Nenova², Iskra Tomova², Ognyana Hristova, Dimitar Ivanov¹
¹National Reference Laboratory for Fish, Mollusk and Crustacean Diseases, National Diagnostic and Research Veterinary Medical Institute, Sofia;
²National Reference Laboratory Special Bacterial Pathogens National Center of Infectious and Parasitic Diseases, Sofia; ³Institute of Oceanology, Bulgarian Academy of Sciences, Varna
- 15:20-15:30** **VM5** **Microbiological studies on the prevalence of *Staphylococcus* spp., involved in the etiology of mastitis in cattle and their susceptibility to antimicrobial agents in the Republic of Bulgaria**
Mariana Nikolova, Valentina Urumova
Department of Veterinary Microbiology, Infectious and Parasitic Diseases, Faculty of Veterinary Medicine, Trakia University, Stara Zagora
- 15:30-15:40** **VM6** **On some basic characteristics of *Streptococcus suis* strain isolated from intensive reared pigs in Bulgaria**
Vasilena Galeva
Department of Veterinary Microbiology, Infectious and Parasitic Diseases, Veterinary Faculty at the Trakia University, Stara Zagora

ENVIRONMENTAL MICROBIOLOGY

Chairs: Ekaterina Krumova, Massimiliano Fenice

Plenary lectures

- 15:30-16:00 EM1 **The control of the Valuable Biological Materials in an unsafe world****
Gabriel Ionescu
*„Cantacuzino” National Military Medical Institute for Research and Development;
„Carol Davila” University of Medicine and Pharmacy Bucharest*
- Coffee break 16:00 – 16:30**

- 16:30-17:00 EM2 **Two-stage anaerobic digestion of organic wastes: state of the art and some perspectives****
Ivan Simeonov, Lyudmila Kabaivanova, Elena Chorukova
The Stephan Angeloff Institute of Microbiology, Bulgarian Academy of Sciences, Sofia

- 17:00-17:30 EM3 **Multifunctional algology lab for maximum CO₂ capture and synthesis of high value products. Modern challenges of climate changes and virus pandemic****
Alexander Dimitrov Kroumov¹, Maya Margaritova Zaharieva¹, Yana Illieva¹, Mila Kaleva¹, Tanya Kim¹, Fabiano Bisinella Scheufele², Daniela Estelita Goes Trigueros², Aparecido Nivaldo Módenes², Hristo Najdenski¹
¹The Stephan Angeloff Institute of Microbiology, Bulgarian Academy of Sciences, Sofia; ²Department of Chemical Engineering, Nucleus of Biotechnology Center, West Paraná State University-Toledo, Toledo, PR, Brazil

Oral reports

- 17:30-17.40 EM4 **Metabarcoding characterisation of the bacterial diversity within the thalassohaline environment of the saline di Tarquinia, Italy****
Susanna Gorrasi¹, Marcella Pasqualetti^{1,2}, Massimiliano Fenice^{1,3}
¹Laboratory of Microbiology, Department of Ecological and Biological Sciences, University of Tuscia, Viterbo, Italy; ²Laboratory of Ecology of Marine Fungi, CoNISMa, Department of Ecological and Biological Sciences, University of Tuscia, Viterbo, Italy; ³Laboratory of Applied Marine Microbiology, CoNISMa, Department of Ecological and Biological Sciences, University of Tuscia, Viterbo, Italy

17:40-17:50 EM5

Composition and antibacterial effect of water from mineral springs in the region of Velingrad

Peter Petrov¹, Karina Marinova¹, Valentina Lyubomirova², Narzislav Petrov¹, Lyudmila Velkova¹, Angelina Kosateva¹, Pavlina Dolashka¹

¹*Institute of Organic Chemistry with Centre of Phytochemistry, Bulgarian Academy of Sciences, Sofia;* ²*Faculty of Chemistry and Pharmacy of Sofia University "St. Kliment Ohridski", Sofia*

17:50-18:00 EM6

Microbiological, physicochemical and isotopic results of glacier water from Chile

Ignat Ignatov¹, Nedyalka Valcheva²

¹*Scientific Research Center of Medical Biophysics, Sofia;* ²*Faculty of Agriculture, Department Biochemistry, Microbiology, Physics, Trakia University, Stara Zagora*

Poster Session Two (18:00 – 19:00)

FM, V, EM

Chairs: Lyubka Doumanova, Marchella Pasqualetti, Petya Orozova, Radoslav Abrashev

Virology (V)

- V7 Real time quantitative PCR as a reliable method for detecting CMV reactivation in patients with lymphomas**
Zhivka Stoykova^{1,2}, Tsvetelina Kostadinova^{1,3}, Ilina Micheva⁴, Tatina Todorova^{1,2}
¹Laboratory of Virology, University Hospital "St. Marina", Varna; ²Department of Microbiology and Virology, Medical University of Varna, Varna; ³Medical College, Medical University of Varna, Varna; ⁴Clinic of Hematology, University Hospital "St. Marina", Varna
- V8 Combined antiviral treatment against Coxsackievirus B3 and Poliovirus**
Adelina Stoyanova¹, Simeon Galabov¹, Philipov S.², Makarov V.³, Angel S. Galabov¹
¹The Stephan Angeloff Institute of Microbiology, Bulgarian Academy of Sciences, Sofia; ²Institute of Organic Chemistry with Centre of Phytochemistry, Bulgarian Academy of Sciences, Sofia; ³Bach Institute of Biochemistry, Moscow, Russian Federation
- V9 Treatment via consecutive alternating administration of antivirals against Coxsackievirus B3 infection in mice**
Adelina Stoyanova¹, Nikoleta Hristova¹, Simeon Galabov¹, Makarov V.², Philipov S.³, Pürstinger G.⁴, Dobrikov G.³, Angel S. Galabov¹
¹The Stephan Angeloff Institute of Microbiology, Bulgarian Academy of Sciences, Sofia; ²Bach Institute of Biochemistry, Moscow, Russian Federation; ³Institute of Organic Chemistry with Centre of Phytochemistry, Bulgarian Academy of Sciences, Sofia; ⁴Institute of Pharmacy, University of Innsbruck, Innsbruck, Austria
- V10 Effect of castalagin against HSV-1 infection in mice**
Adelina Stoyanova¹, Victor Rashev¹, Popatanasov A.², Lyubka Tancheva², Quideau S.³, Angel S. Galabov¹
¹The Stephan Angeloff Institute of Microbiology, Bulgarian Academy of Sciences, Sofia; ²Institute of Neurobiology, Bulgarian Academy of Sciences, Sofia; ³University of Bordeaux, Bordeaux, France
- V11 SARS-CoV2 spike, enveloped and membrane proteins expressed in *Nicotiana benthamina* detect specific antibodies in COVID-19 patients**
Katerina Takova¹, Jae-Wang Jung², George Lomonosoff², Gergana Zahmanova^{1,3}
¹Department of Plant Physiology and Molecular Biology, University of Plovdiv, Plovdiv; ²Department of Biochemistry and Metabolism, John Innes Centre, Norwich Research Park, UK; ³Center of Plant Systems Biology and Biotechnology, Plovdiv

V12 Data on the prevalence of hepatitis E virus among domestic pigs and wild boar in Bulgaria

Katerina Takova¹, Gergana Zahmanova^{1,2}

¹Department of Plant Physiology and Molecular Biology, University of Plovdiv, Plovdiv; ²Center of Plant Systems Biology and Biotechnology, Plovdiv

V13 Elevation of liver enzymes during Covid-19 pandemics – Bulgarian study on 3038 patients

Sonja Velkova^{1,2}, Kalin Hinov², Galina Satchanska¹

¹Department of Natural Sciences, New Bulgarian University, Sofia; ²Nadejda-1 Clinical Laboratory, Sofia

Food Microbiology (FM)

FM5 Effects of *Lactobacillus plantarum* post-metabolites on HT-29 intestinal epithelial cell monolayer characteristics

Kirilka Mladenova¹, Ralitsa Veleva¹, Lili Dobрева², Svetla Danova², Pavel Videv¹, Tanya Topouzova-Hristova¹, Denitza Melnishka¹, Jordan Doumanov¹, Vesselina Moskova-Doumanova¹

¹Faculty of Biology, Sofia University St. Kliment Ohridski, Sofia ²The Stephan Angeloff Institut of Microbiology, Bulgarian Academy of Sciences, Sofia

FM6 Proteolytic activity of different lactic acid bacteria species cultivated on media with plant proteins

Teodora Panayotova^{1,2}, Zoltan Urshev², Iliia Iliev

¹Centre of Technologies, Plovdiv University "Paisii Hilendarski", Plovdiv; ²LB-Bulgaricum Plc., R&D Center, Sofia

FM7 Cultivation of probiotic lactic acid bacteria species with different proteolytic activity into media based on plant proteins

Nora Pavlova, Teodora Panayotova, K. Pashova

LB-Bulgaricum Plc., R&D Center, Sofia

FM8 Virulence potential of enterococci isolates from non-hospital origin

Maria Pandova, Yoana Kizheva, Iliyana Rasheva, Petia Hristova

Department of General and Applied Microbiology, Faculty of Biology, Sofia University "St. Kliment Ohridski", Sofia

FM9 Antibiotic resistance of enterococci with different origin

Maria Pandova, Yoana Kizheva, Iliyana Rasheva, Petia Hristova

Department of General and Applied Microbiology, Faculty of Biology, Sofia University "St. Kliment Ohridski", Sofia

FM10 Assessment of the ability of *Streptococcus thermophilus* strains to produce folates

Irina Gotova, Zhechko Dimitrov

LB Bulgaricum Plc, R&D Center, Sofia

Environmental Microbiology (EM)

- EM7 Influence of urbanization along the Yantra river on the prevalence of antibiotic resistant bacteria**
Zvezdimira Tsvetanova, Hristo Najdenski
Department of Infectious Microbiology, The Stephan Angeloff Institute of Microbiology, Sofia
- EM8 Antimicrobial resistance of drinking water and drinking water-associated biofilms**
Zvezdimira Tsvetanova, Iva Tsvetkova, Hristo Najdenski
Department of Infectious Microbiology, The Stephan Angeloff Institute of Microbiology, Sofia
- EM9 Scientific project “Caves as a reservoir for novel and reoccurring zoonoses - ecological monitoring and metagenomic analysis in real time”**
Vladimir Tolchkov¹, Yordan Hodzhev¹, Borislava Tsafarova¹, Rumyana Nenova¹, Ognyan Mikov¹, Nikolay Simov², Gancho Slavov², Staninmira Deleva², Nia Toshkova², Nedyalko Nedyalkov², Mario Langurov², Rostislav Bekchiev², Pavel Stoev², Milena Nikolova², Stefan Panaiotov¹
¹*National Center of Infectious Diseases, Sofia*; ²*National Museum of Natural History, Bulgarian Academy of Sciences, Sofia*
- EM10 Application of bacteriophage-based biopesticide in rhizosphere soil and influence on beneficial soil microorganisms**
Melani Dimitrova, Yoana Kizheva, Iliyana Rasheva, Petya Hristova
Faculty of Biology, Sofia University “St. Kliment Ohridski”, Sofia
- EM11 Diurnal variations in the concentration of microbial bioaerosols in outdoor air of highly urbanized Sofia city center**
Ralitsa Ilieva¹, Boyanka Angelova¹, Mihail Iliev¹, Veneta Groudeva¹, Ivan Nedkov²
¹*Sofia University “St. Kliment Ohridski”, Sofia*; ²*Institute of Electronics “Emil Djakov”, Bulgarian Academy of Sciences, Sofia*
- EM12 Extracellular sialidase enzyme production by filamentous fungi from Livingston Island, Antarctica**
Radoslav Abrashev¹, Ekaterina Krumova¹, Penka Petrova¹, Rumyana Eneva¹, Nedelina Kostadinova¹, Jeni Miteva-Staleva¹, Stephan Engibarov¹, Galina Stoyancheva¹, Yana Gocheva¹, Vera Kolyovska², Vladislava Dishliyska¹, Boryana Spassova¹, Maria Angelova¹
¹*The Stephan Angeloff Institute of Microbiology, Bulgarian Academy of Sciences, Sofia*; ²*Institute of Experimental Morphology, Pathology and Anthropology with Museum, Bulgarian Academy of Sciences, Sofia*
- EM13 Preliminary study of genetic diversity among Rosa genotypes by ISSR markers**
Mariya Zhelyazkova¹, Neli Grozeva², Ana Dobрева³, Veselina Badzhelova³, Svetlana Georgieva¹
¹*Department of Genetics, Breeding and Reproduction, Faculty of Agriculture, Trakia University, Stara Zagora*; ²*Department of Biology and Aquaculture, Faculty of Agriculture, Trakia University, Stara Zagora*; ³*Institute for Roses and Aromatic Plants, Kazanlak, Bulgaria*

Saturday, October 8th, 2022

Old School

Session Five (9:00 – 13:00) [Coffee break 11:00 – 11:30]

VIROLOGY

Chairs: Angel Galabov, A. Arzu Sayner

9:00-9:10

90th Anniversary of the birth of Professor Stephan Dundarov

Angel Galabov, President of the BSM

The Stephan Angeloff Institute of Microbiology, Bulgarian Academy of Sciences, Sofia

Oral reports

9:10-9:20

V1

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Bvetelina Kostadinova^{1,3}, Tatina Todorova^{1,2}, Irina Ivanova^{4,5}

- 9:20-9:30** **V2** **Analysis of the transmitted drug resistance and molecular epidemiology of HIV-1 in Bulgaria, challenges, and prospects**
Ivaylo Alexiev¹, Alexandra Partsuneva¹, Lyubomira Grigorova¹, Reneta Dimitrova¹, Anna Gancheva¹, Asya Kostadinova¹, Ivaylo Elenkov², Nina Yancheva², R. Grozdeva², Mariana Stoycheva³, Tsetsa Doichinova⁴, Lilia Pekova⁵, Minas Kosmidis⁶, Radoslava Emilova⁷, Maria Nikolova⁷
¹National Reference Confirmatory Laboratory of HIV, NCIPD, Sofia; ²Specialized Hospital for Infectious and Parasitic Diseases, Sofia; ³Department of Infectious Diseases, Medical University, Plovdiv; ⁴Department of Infectious Diseases, Medical University, Pleven; ⁵Clinic of Infectious Diseases, Medical University, Stara Zagora; ⁶Clinic of Infectious Diseases, Medical University, Varna; ⁷National Reference Laboratory of Immunology, NCIPD, Sofia
- 9:30-9:40** **V3** **Gene silencing of some viral genes of human Coxsackievirus B**
Nikolay M. Petrov¹, Mariya I. Stoyanova², Angel S. Galabov
¹Laboratory of Virology, Department of Natural Sciences, New Bulgarian University, Sofia; ²Department of Plant Protection, Institute of Soil Science, Agrotechnologies and Plant Protection “N. Pushkarov”, Agricultural Academy, Sofia; The Stephan Angeloff Institute of Microbiology, Bulgarian Academy of Sciences, Sofia
- 9:40-9:50** **V4** **Bronchial epithelial cells at the air-liquid-interface for investigation of host-influenza virus interactions**
Lora Simeonova¹, Adriana Kaleva¹, Petya Dimitrova², Cyril Barbezange³, Milena Leseva²
¹Department of Virology, The Stephan Angeloff Institute of Microbiology, Bulgarian Academy of Sciences, Sofia; ²Department of Immunology, The Stephan Angeloff Institute of Microbiology, Bulgarian Academy of Sciences, Sofia; ³Sciensano, National Influenza Centre, Brussels, Belgium
- 9:50-10:00** **V5** **Spatio-temporal dynamics of co-circulating rabies virus variants isolated in dog population in Cameroon**
Jocelyne Noel Sowe Wobessi¹, Jean Blaise Momo¹, Laura Besong², S everin Loul², Jean-Luc Bailly³, Richard Njouom¹, Serge Sadeuh-Mba¹
¹Virology Service, Centre Pasteur du Cameroun, Yaounde; ²Ministry of Livestock, Fisheries and Animal Industries (MINEPIA); ³Laboratoire Génome Micro-organisme et Environnement (LMGE), Clermont Ferran
- 10:00-10:10** **V6** **Removal of viruses from the air by adsorption with activated carbon**
Ivanka Stoycheva¹, Boyko Tsyntsarski¹, B. Petrova¹, Angelina Kosateva¹, Narzislav Petrov¹, Stoyan Shishkov²
¹Institute of Organic Chemistry with Centre of Phytochemistry, Bulgarian Academy of Sciences Sofia; ²Laboratory of Virology, Department of Biology, Sofia University “St. Kliment Ohridski”, Sofia

FOOD MICROBIOLOGY

Chairs: Svetla Danova, Galina Satchanska

Plenary lectures

- 10:10-10:40 FM1 Yeast probiotics in ruminant nutrition and health: a review**
Stefan Denev
Department of Biochemistry and Microbiology, Faculty of Agriculture, Trakia University, Stara Zagora
- 10:40-11:10 FM2 Mode of the beneficial effects of Bulgarian probiotic lactobacilli**
Svetla Danova¹, Lili Dobрева¹, Veronika Nemska^{1,2}, Daiana Borisova¹, Cvetelina Paunova¹, Miglena Koprinarova³, Jordan Doumanov⁴, Tanya Topuzova⁴, Veselina Moskova⁴
¹The Stephan Angeloff Institute of Microbiology, Bulgarian Academy of Sciences, Sofia; ²University of Chemical Technology and Metallurgy, Sofia; ³Institute of Molecular Biology „Acad. Roumen Tsanev”, Bulgarian Academy of Sciences, Sofia; ⁴Biological Faculty, Sofia University “St. Kliment Ohridski”, Sofia
- 11:10-11:40 FM3 Pathogenic bacteria in milk products and their antibiotic resistance**
Galina Satchanska
Department Natural Sciences, New Bulgarian University, Sofia

Oral reports

- 11:40-11:50 FM4 Microflora of water samples from Sofia City and Sofia region**
Lilia Petrova Yordanova¹, Iliana Atanassova Ivanova², Lyubomira Dimitrova Yocheva³
¹Master degree in Quality and safety of food 2022, Sofia University “St. Kliment Ohridski”, Sofia; ²Department of General and Industrial Microbiology, Faculty of Biology, Sofia University “St. Kliment Ohridski”, Sofia; ³Faculty of Medicine, Sofia University “St. Kliment Ohridski”, Sofia

INFECTIOUS IMMUNOLOGY

Chairs: Petya Dimitrova, Anastas Pashov

- 12:00-12:30 III1 Targeting neutrophils during inflammation**
Petya Dimitrova, Milena Leseva

*Laboratory of Experimental Immunotherapy, Department of Immunology, The
Stephan Angeloff Institute of Microbiology, Bulgarian Academy of Sciences, Sofia*

12:30-13:00 II2

Global analysis of antibody repertoires

Anastas Pashov¹, Shina Pashova²

*¹The Stephan Angeloff Institute of Microbiology, Bulgarian Academy of Sciences,
Sofia; ²Institute of Biology and Immunology of Reproduction, Bulgarian Academy
of Sciences, Sofia*

13:00 - Congress Adjourn