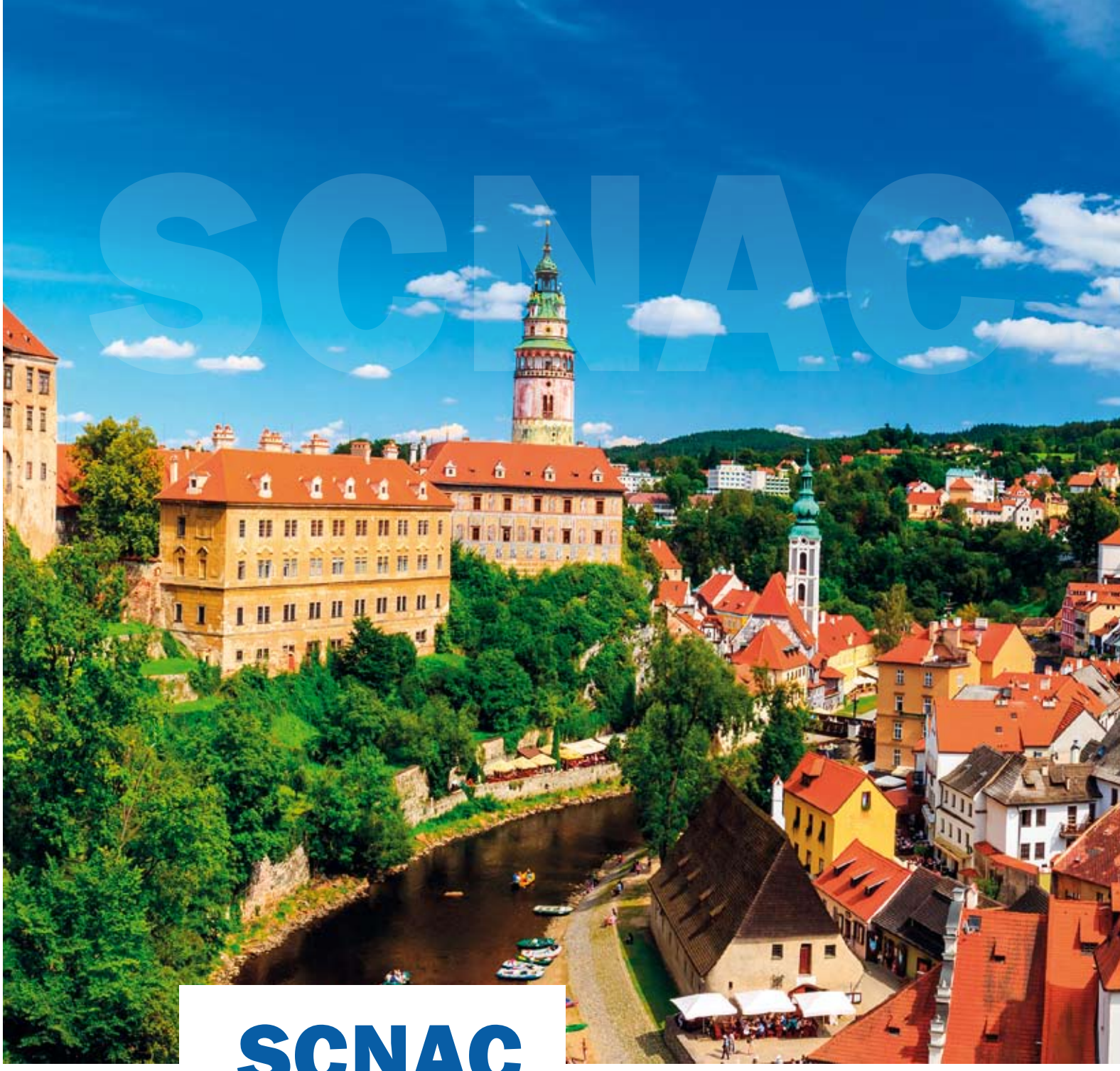
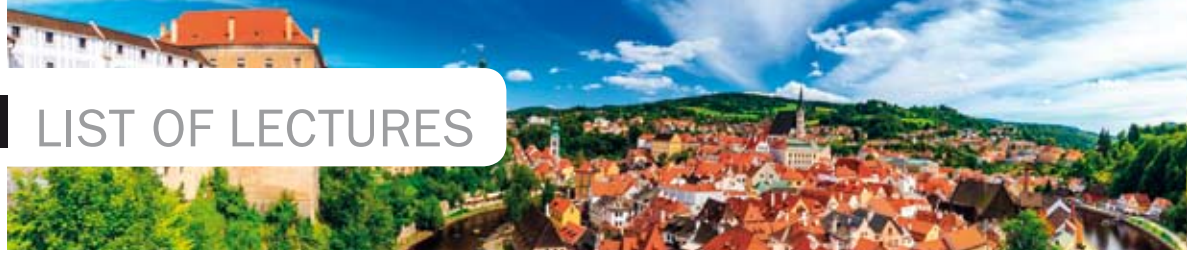


SCNAC

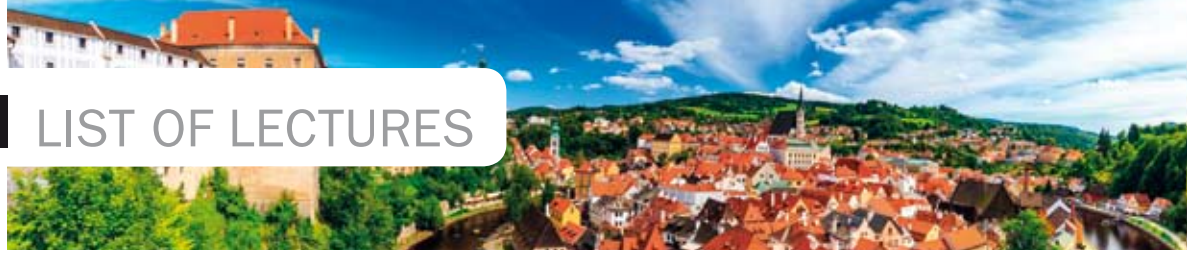
XIXth Symposium on Chemistry of Nucleic Acid Components

SCIENTIFIC PROGRAMME



Day	From	To	Org. No.	Name	Surname	Title	Ser. No.
Monday, June 9						***Chair: Michal Hocek***	
	8:45	9:00		Michal	Hocek	**Opening**	
	9:00	9:40	PL-1	Natalya	Tretyakova	DNA-protein cross-links and their role in aging and human diseases	70
	9:40	10:00	OC-1	Hermann	Neitz	Photoreactive uridine analogs for the synthesis of crosslinked DNA	56
	10:00	10:20	OC-2	Anton	Granzhan	Unprecedented reactivity of polyamines with aldehydic modifications in DNA: abasic (AP) sites, 5-formyluracil and 5-formylcytosine	26
	10:20	10:50				**Coffee Break**	
						Chair: S. Srivatsan	
	10:50	11:20	EYIL-1	Michael	Booth	Nucleic acid conjugates: remote control, targeting, and entirely new functions	20
	11:20	11:40	OC-3	Nazarii	Sabat	Next-generation chemoenzymatic synthesis of chemically modified oligonucleotides	21
	11:40	12:00	OC-4	Mathias	Gruen	Enzymatic RNA Synthesis & Labeling: Three examples for extending the current toolbox	34
	12:00	12:20	OC-5	Dmitri	Filippov	Solid Phase Synthesis of ADP-ribose oligomers using P(V)-halophosphates	49
	12:20	12:40	OC-6	Robert	Britton	New Strategies for the Rapid, Flexible and Scalable Syntheses of Nucleoside Analogues	1
	12:40	14:20				**Lunch**	
						Chair: A. Okamoto	
	14:20	14:30				**Sorm award ceremony**	
	14:30	15:10	PL-2	Naoki	Sugimoto	All about “To B or not to B” in Nucleic Acids Chemistry	111
	15:10	15:30	OC-7	Kun	Zhang	RNA G-quadruplex structure-based PROTACs for targeted DHX36 protein degradation and gene activity modulation in mammalian cells	36
	15:30	15:50	OC-8	Gabriel Antonio	Minero	Imaging G-quadruplex DNA in biofilms by thiazole orange-based dyes forming FRET	47
	15:50	16:10	OC-9	Mélanie	Etheve-Quelquejeu	Harnessing Nucleoside and Nucleotide Chemistry to Explore RNA Modifications	28
	16:10	16:40				**Coffee Break**	
	16:40	17:20	PL-3	Hiroshi	Abe	Chemistry based mRNA design enhancing translation toward therapeutics	114
	17:20	17:40	OC-10	Samanta	Rožánková	Enzymatic Synthesis of Base-Modified XNA Using Engineered DNA Polymerases	62
	17:40	18:00	OC-11	Eriks	Rozners	Amide-Modified RNA: Using Protein Backbone to Modulate Function of RNA	6
	18:00	18:20	OC-12	Ronald	Micura	Tailoring covalent small molecule–RNA complexes	37
	19:00	21:30				**Jena Bioscience Beer-party and Dinner**	

Day	From	To	Org. No.	Name	Surname	Title	Ser. No.
Tuesday, June 10						***Chair: M. Etheve-Quelquejeu***	
	9:00	9:40	PL-4	Christa E.	Müller	Extracellular nucleotides and nucleosides as signaling molecules – opportunities for drug development	66
	9:40	10:00	OC-13	Suzanne	Peyrottes	Carbonucleotide analogues as a new chemotype for Pf inhibition	19
	10:00	10:20	OC-14	Dominik	Rejman	Inhibitors of the 6-oxopurine phosphoribosyltransferases	45
	10:20	10:50				**Coffee Break**	
						Chair: M. Booth	
	10:50	11:20	EYIL-2	Willem	Velema	Bacterial RNA Targeting	108
	11:20	11:40	OC-15	Eylon	Yavin	Chemically Modified FIT-PNAs: Bright Nucleic Acid Sensing Molecules	8
	11:40	12:00	OC-16	S. G.	Srivatsan	Probing nucleic acid architecture and function using responsive nucleoside analogs	10
	12:00	12:20	OC-17	Oliver	Seitz	Bright, yet still responsive - enhanced fluorogenic hybridization probes for cell measurements	42
	12:20	12:40	OC-18	Byron	Purse	Fluorescent Nucleoside Analogues for Live-Cell Imaging of RNA Biology and Single-Molecule Studies	3
	12:40	14:30				**Lunch**	
						Chair: O. Seitz	
	14:30	14:50	OC-19	Christopher	Serpell	Non-enzymatic selection of chemically modified aptamers and non-natural phosphoestamers for protein binding	5
	14:50	15:10	OC-20	Marek	Ondruš	Development of modified aptamers using various selection approaches	117
	15:10	15:30	OC-21	Ciara	O´Sullivan	Next Generation Tools for the Emerging and Future Paradigm of Clinical Diagnostics	64
	15:30	15:50	OC-22	Clemens	Richert	Translation without Ribosomes	65
	15:50	16:00	SL	Alessandro	Panattoni	SigutLabs - sponsor talk	
	16:30	21:30				**Poster session + Dinner**	



Day	From	To	Org. No.	Name	Surname	Title	Ser. No.
Wednesday, June 11						***Chair: E. Rozners***	
	9:00	9:40	PL-5	Hanadi	Sleiman	DNA Self-assembly: from Pathway Complexity to Nucleic Acid Delivery	115
	9:40	10:00	OC-23	Job	Boekhoven	Single Molecule analysis of chemically fueled DNA hybridization	53
	10:00	10:20	OC-24	Katharina	Höfer	The art of RNAylation: linking nucleic acids to proteins with natural precision to regulate cellular processes	38
	10:20	10:50				**Coffee Break**	
						Chair: S. Kath-Schorr	
	10:50	11:20	EYIL-3	Kerstin	Göpfrich	RNA origami: Building a synthetic cellular machinery from nucleic acids	110
	11:20	11:40	OC-25	Brionna	McGorman	The Design and Development of Targeted Artificial Metallo-RNases	58
	11:40	12:00	OC-26	Milan	Štefek	Nucleoside-based bisubstrate inhibitors of SARS-CoV-2 nsp14 methyltransferase: design, synthesis and binding	61
	12:00	12:20	OC-27	Martin	Volek	Aurora: a fluorescent deoxyribozyme for high-throughput screening	27
	12:20	12:40	OC-28	Shiau Wei	Liew	A novel L-RNA aptamer to regulate the pUG fold RNA-induced gene expression in vivo	39
	12:40	14:30				**Lunch**	
	14:30	19:30				Free afternoon	
	19:30	23:00				**Conference Dinner**	

Day	From	To	Org. No.	Name	Surname	Title	Ser. No.
Thursday, June 12						***Chair: C. Höbartner***	
	9:00	9:40	PL-6	Thomas	Carell	The Extended RNA World Concept	24
	9:40	10:00	OC-29	Hana	Cahová	Dinucleoside polyphosphates serve as RNA caps in bacteria and mammalian cells	125
	10:00	10:20	OC-30	Andrea	Rentmeister	Chimeric cofactors enable methyltransferase-catalyzed nucleic acid prenylation	55
	10:20	10:50				**Coffee Break**	
						Chair: A. Rentmeister	
	10:50	11:10	OC-31	Stephanie	Kath-Schorr	Two are not enough: Extra base pairs in nucleic acids and their applications	54
	11:10	11:30	OC-32	Marvin	Caruthers	Synthesis and Biological Activity of Morpholino Oligonucleotides	4
	11:30	11:50	OC-33	Ondřej	Kostov	Thiomorpholino Oligonucleotides (TMOs): Applications in RNA Secondary Structure Modulation and siRNA-Based Gene Silencing	23
	11:50	12:10	OC-34	Anna	Rydzik	Chemically modified microRNA mimics as oligonucleotide therapeutics: a case-study on miR-200c	41
	12:10	12:30	OC-35	Akimitsu	Okamoto	Enhanced Cell Permeability of PFC-DNA Conjugates for Nucleic Acid Therapeutics	52
	12:30	12:50	OC-36	Claudia	Höbartner	Molecular architectures, mechanisms and applications of RNA-alkylating ribozymes	60
	12:50	14:30				**Lunch**	
						Chair: J.-L. Mergny	
	14:30	15:10	PL-7	Cynthia	Burrows	Telomeres and Ribosomes as Test Tubes for Cellular Stress	44
	15:10	15:30	OC-37	Jens	Sobek	Single-Molecule Chemistry: Oxidation of Guanine in Oligonucleotides and Analysis of Reactions Products	18
	15:30	15:50	OC-38	Pradeepkumar	Pi	Molecular insights into the effects of DNA modification in crRNA on Cas9 structure and function	35
	15:50	16:10	OC-39	Enrico	Cadoni	Locking up G-Quadruplexes with Light-Triggered Staples Leads to Increased Topological, Thermodynamic, and Metabolic Stability	59
	16:10	16:40				**Coffee Break**	
						Chair: H. Cahova	
	16:40	17:00	OC-40	Jean-Louis	Mergny	Quadruplexes are everywhere!	32
	17:00	17:40	PL-8	Shankar	Balasubramanian	Structure and function of G-quadruplex DNA	126
	17:40	18:10				**Concluding remarks**	
	18:30	20:30				**Dinner**	

Tuesday, June 10 afternoon

org. no.	Surname, name	Title	ser. no.
P-01	Abrahamsson Alva	Selectively targeting individual G-quadruplex DNA structures with G4-Ligand Conjugated Oligonucleotides and the impact of linker design	43
P-02	Ahmad Iram	Non-covalent spin-labeling of RNA through helical stacking	99
P-03	Ammerlaan Augustinus Nicolaas Antonius	Synthesis of difluoromethylene bisphosphonates using a convergent P(V)-P(III) coupling approach	78
P-04	Baraniak Dagmara	The biological assay of pyrimidine nucleoside dimers analogues with a short 1,2,3-triazole linker - the second part of research	124
P-05	Baskevics Vladislavs	Molecular Dynamics-Guided Design of Peptide Nucleic Acid Nucleobases for Targeting Double-Stranded RNA through Triple-Helix Recognition	74
P-06	Baszczyński Ondřej	Delivery of antifungals using phosphorus self-immolative linkers	122
P-07	Behn Tobias Albert	Next-generation DNAzymes	105
P-08	Bickert Linus	A Linker-Plattform-System for connecting modified Oligonucleotides with modified Multisugars and Proteins	29
P-09	Boinowitz Erik	Emergence of the building blocks of life in the Hadean eon	13
P-10	Cardos Tisnado Karen Lizbeth	Ionizing Radiation Damage to Data Carrying DNA Origami Nanostructures	31
P-11	Colpaert Gertjan	Furan-modified G-quadruplex Aptamers for Covalent Protein Targeting	118
P-12	De Paepe Lessandro	Templated and Sequence-Selective Pre-miRNA G-Quadruplex Targeting	57
P-13	Dejmek Milan	Synthetic cyclic dinucleotides modulate the cGAS–STING pathway to curb tick-borne encephalitis virus replication and prevent neuroinfection in a mouse model	71
P-14	Dicke Finn	Stabilized analogues of Z-RNA and their interaction with Z-nucleic acid binding immune response proteins	100
P-15	Diukarev Nikolai	The formation of life's building blocks under the conditions of Hadean eon.	12
P-16	Dorinova Evgeniia	Site-specific RNA labeling by alkyltransferase ribozymes	93
P-17	Dziuba Dmytro	Fluorescent molecular rotors as probes for RNA-based biomolecular condensates	88
P-18	Ferenc Györgyi	Comparison of ultramild deprotecting conditions for the synthesis of sensitive chemically modified oligonucleotides	84

Tuesday, June 10 afternoon

P-19	Franco Urquijo Pablo Alberto	Single round aptamer selection using modified over-represented libraries	120
P-20	Gargantilla Marta	Exploring novel polycyclic hetero-aryl-7-deazapurine nucleosides with potential therapeutic application	94
P-21	Ge Qingyi	Deciphering Queuosine with a Chemical Knock-Out Strategy: Insights into RNA Biology and Disease based on Temporal Proteomics	87
P-22	Ghosh Pulak	Chimeric cofactors enable methyltransferase-catalyzed prenylation	86
P-23	Grab Katarzyna	Synthesis and characterization of fluorescent RNAs for monitoring the activity of decapping enzymes	82
P-24	Gusti Ngurah Putu Eka Putra	Genomic mapping of AP sites via their reaction with polyamine reagents	106
P-25	Chmielewski Marcin	Targeted siRNA-NPs to reverse fibrosis in ischemic cardiomyopathies	81
P-26	Chmielewski Marcin	Microwave-Dependent Thermo-Release Approach for Oligonucleotides 5´-Phosphorylation	80
P-27	Jastrzębska Katarzyna	P-stereodefined phosphorothioate analogs of “morpholino” oligonucleotides	25
P-28	Kaiser Lukáš	Enzymatic synthesis of hypermodified DNA bearing protein-like functional groups	79
P-29	Khwaja Sakina	Directing Ligands to Specific G4 DNA Structures Using Structurally Modified Guide DNA	46
P-30	Kim Ki Tae	Nucleic Acid-Templated Oxidation of Reduced Xanthene Fluorophores	72
P-31	Kołacki Oskar	Hybrid Supports for Oligonucleotide Synthesis: Controlled Pore Glass functionalised with multi-amine polymers	89
P-32	Kovács Lajos	Xanthines and their analogues in oligonucleotides	83
P-33	Kowalska Joanna	Chemical circularization of mRNA	104
P-34	Kraus Tomas	Super-resolution compatible DNA labeling technique reveals chromatin mobility and organization changes during differentiation	123
P-35	Kupihár Zoltán	Synthesis of 3’- and 5’-thiol modified oligonucleotides having moderate length thiol linkers to make disulfide linked hairpinless oligonucleotide conjugates	101
P-36	Kwok Chun Kit	Pre-Defined Stem-Loop Structure Library Expedites Discovery of L-RNA Aptamer that Targets RNA G-quadruplex	33

Tuesday, June 10 afternoon

P-37	Lasek Tomas	Advancing Morpholino Oligonucleotide Chemistry: P(III)-Mediated Synthesis of PMOs and TMOs	112
P-38	List Eileen	Metabolic Labelling of Nucleic Acids	77
P-39	Liuni Giammarco	Development of DNA-based PROTAC for transcription factor targeting	69
P-40	Liuni Giammarco	Development of a platform for protein display on DNA scaffold	68
P-41	Lüggert Sophie	Helical Chromophore Assemblies on DNA Templates: Inducing Circularly Polarized Luminescence	98
P-42	Makarov Dmitry	4-Sulfur-containing derivatives of 5-modified uridines as promising antimicrobial compounds	40
P-43	Márton András	Synthesis of cyclic, short, double stranded oligonucleotides	102
P-44	Mitteregger Christoph	Synthesis and properties of 1-deazainosine and inosine modified RNA	50
P-45	Mueller Markus	Pseudouridine influences R-loop stability	92
P-46	Mužíková Čechová Lucie	Modified DNA aptamers: Exploring the influence of the modifications	119
P-47	Nazzal Huda	FIT PNAs as RNA Probes for the Detection of BRAF V600E in Melanoma Cells	9
P-48	Ogel Eric	Synthesis and incorporation of a pH-responsive base into DNA sequences	22
P-49	Osawa Takashi	Synthesis of dinucleotides containing 2′,3′-trans-bridged nucleic acids (2′,3′-trans-BNAs) with trans-5,6- or 5,7-fused ring skeleton	75
P-50	Palágyi Attila	Enzymatic Synthesis of Hypermodified DNA with Expanded Genetic Alphabet	113
P-51	Petrová Magdalena	Nucleoside boronic acids	48
P-52	Quelhas Alexandre	Synthesis of base-modified nucleoside triphosphates to improve the properties of mRNA vaccines	73
P-53	Raindlova Veronika	Milligram-Scale Enzymatic Synthesis of Base-modified DNA. Polymerase Synthesis and NMR Structure of DNA Containing Phenyl-Substituted Nucleobases	116
P-54	Sanchez Quirante Tania	Base-modified RNA for translation and CRISPR-Cas studies	67

Tuesday, June 10 afternoon

P-55	Sokhraneva Vera	An approach to increasing the bioavailability of 5'-nor-cabocyclic uracil derivatives	51
P-56	Spampinato Ambra	The Role of NAD and Non-Canonical Caps in RNA-RNA interaction	127
P-57	Stanik Radek	Development of highly potent CD73 inhibitors for cancer immunotherapy	121
P-58	Strzelec Joanna	Ionic Liquid Anchors: A Gateway to Large-Scale Liquid-Phase Oligonucleotide Synthesis	90
P-59	Szczepanski Kacper	Molecular toolbox for studying mRNA interactome	91
P-60	Taylor Alexander Iain	A nucleic acid aptamer mimic of the His tag	17
P-61	Thijs Matthias	New Synthetic Methodology Enables Rapid Screening and Discovery of Hydrazone-Based Fluorescent Nucleobase Analogues	96
P-62	Torrents Lara Maria	Synthesis of non-canonical nucleoside phosphoramidites as building blocks for peptide-oligonucleotide conjugates	16
P-63	Waligórski Krzysztof	Large-scale synthesis of siRNA for in vivo trials	95
P-64	Walter Tobias	Novel Tet3 enzymes for next generation epigenetic sequencing	14
P-65	Wanat Przemyslaw	Diazirine functionalized fluorophores – Toward substrates for photo-crosslinking with fluorescence light-up aptamers	76
P-66	Warminski Marcin	Chemically modified trinucleotide mRNA 5' cap analogs for therapeutic applications and functional studies	85
P-67	Xefteris Stylianos	Synthesis and structure elucidation of Glutamyl-Queuosine	107
P-68	Zhang Qiyang	Reversibly Clicked mRNA: a Modular Approach to Enhance Functionality	97