TURKISH CHEMISTS' SOCIETY

4th ANATOLIAN CONFERENCE ON ORGANIC CHEMISTRY

04-07 March, 2024 | Kemer-TÜRKİYE

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ANATOLIAN CONFERENCE ON ORGANIC CHEMISTRY
4th
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Dear Colleague,

On behalf of the conference organizers, the Turkish Chemist's Society, and the hotel staff, we are delighted to welcome you to the fourth Anatolian Conference on Organic Chemistry (ACOC IV). The format follows two earlier conferences in the series where the goal is to provide for world-class chemistry at an outstanding site that promotes discussion in a relaxed atmosphere. The emphasis of the program is chemical synthesis, methodology, catalysis, organometallic chemistry, stereochemistry, and heterocyclic chemistry, which is covered in ten plenary presentations, twenty-four short talks (20 minutes total), a lightning round of three-minute talks, and a two-day poster session. Interaction is a key part of the conference. The presenters will share their exciting discoveries as a prelude to stimulating discussions. We encourage all attendees to ask questions, to share ideas, and to provide further insight the topics of the presentations. We particularly encourage our graduate student attendees to ask questions of our internationally regarded speakers. The conference schedule has been designed to provide numerous opportunities to interact, and we hope this will inspire our attendees to share struggles, to follow up ideas, and potentially to develop new partnerships. Special thanks to our generous financial supporters and the hotel for making this conference possible. I very much hope that you have a great time at the conference and ask that you join with us in participating to make the conference a highlight of 2024.

On behalf of the organizing committee,

Paul Floreancig	David Procter	Ramazan Altundaş
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Prof. Paul Wender, Stanford University

Translational Science: The Chemistry-Biology-Medicine Continuum

Prof. Richmond Sarpong, University of California Berkeley

Break-it-to-Make-it Strategies for Chemical Synthesis Inspired by Complex Natural Products

Prof. Guangbin Dong, University of Chicago

Deconstructive Homologation of Ethers and Amides

Prof. Carsten Bolm, RWTH Aachen University

The Use of Mills in Synthetic Organic Chemistry

Prof. Joanna Wencel-Delord, University of Wurzburg

Metal- or Metal-Free? Complementarity Towards the Sustainable Synthesis of Complex Molecules via C-H Functionalization

Dr. Nicole Goodwin, GlaxoSmithKline

Modern High Throughput Experimentation in Medicinal Chemistry

Prof. Paul Knochel, Ludwig-Maximilians-Universität

Functionalization of N-Heterocycles Using Zn and Mg-Organometallics

Prof. David Procter, University of Manchester

From Sulfonium Salts to Samarium Catalysis: New Radical Chemistry for Synthesis

Prof. Mustafa Emrullahoğlu, İzmir Institute of Technology

Innovative Approaches to Crafting Molecular Platforms for Fluorescence Sensing, Bioimaging and Photodynamic Therapy

Prof. Jonathan Clayden, University of Bristol

Exploiting Conformational Control: Defluorination, Deracemisation, and Directional Rotation

ACOC4 Conference Program

Monday, March 4, 2024	
08:00 - 10:00	**Registration**
SESSION 1	
Session Chair: Prof. Paul FLOREANCIG	
10:00 - 10:30	Opening Ceremony & Welcome Remarks – Prof. Paul FLOREANCIG
10:30 - 11:20	Prof. Paul WENDER, Stanford University, USA Translational Science: The Chemistry-Biology-Medicine Continuum
11:20 - 11:40	Prof. Olga Garcia MANCHEÑO, University of Münster, Germany Supramolecular Triazole-based Anion-Binding Catalysis: From the Design to Synthetic Applications
11:40 - 12:00	Asst. Prof. Julian G. WEST, Rice University, USA A Radical Approach to Organic Chemistry
12:00 - 12:20	Dr. Craig P. JOHNSTON, University of St Andrews, UK Molecular Rearrangements with Carbocation Surrogates
12:20 - 14:00	**Lunch**
SESSION 2	
Session Chair: Asst. Prof. Julian G. WEST	
14:00 - 14:50	Prof. Richmond SARPONG, University of California Berkeley, USA Break-it-to-Make-it Strategies for Chemical Synthesis Inspired by Complex Natural Products
14:50 - 15:10	Prof. Metin BALCI, Middle East Technical University, Türkiye Failure of a Computational NMR Method in Elucidating the Configuration of an Organic Structure: Bromination of Endo-7-Norbornene Derivatives Revisited

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15:10 - 15:30	Prof. Sławomir SZAFERT, Wrocław University, Poland Polyynes as Building Blocks in Organic and Organometallic Syntheses
15:30 - 15:50	Dr. Benjamin N. BHAWAL, The University of Edinburgh, UK Regiochemical Editing by Carbonyl Chain-walking
15:50 - 16:20	**Coffee Break**
SESSION 3	
Session Chair: Prof. Christopher J. TESKEY	
16:20 - 17:10	Prof. Guangbin DONG, University of Chicago, USA Deconstructive Homologation of Ethers and Amides
17:10 - 17:30	Asst. Prof. Ana BAHAMONDE, University of California, Riverside, USA Mechanistic Evidence of a Ni(0/II/III) Cycle for Nickel Photoredox Amide Arylation
17:30 - 17:50	Asst. Prof. Joseph CLARK, Marquette University, USA Precision Labeling of Small Molecules
17:50 - 18:10	Assoc. Prof. Erkan ERTÜRK, TÜBİTAK Marmara Research Center, Türkiye Development of Prolinamides Containing Conformationally Flexible H-Bond Donors as Highly Enantioselective Organocatalysts for Aldol Reactions
18:10 - 18:30	Assoc. Prof. Nurettin MENGEŞ, Necmettin Erbakan University, Türkiye C-H and C-C Activations and Cyclization Approaches Through Named-Reactions
18:30 - 20:00	**Dinner**
20:00 - 21:30	Poster Session
Tuesday, March 5, 2024	
SESSION 4	
Session Chair: Prof. Vittorio PACE	
09:00 - 09:50	Prof. Carsten BOLM, RWTH Aachen University, Germany The Use of Mills in Synthetic Organic Chemistry

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09:50 - 10:10	Prof. Christopher J. TESKEY, Technische Universität Braunschweig, Germany Selective Cobalt Catalysis with Light
10:10 - 10:30	Dr. Yujia QING, University of Oxford, UK Single-Molecule Chemistry under Nanopore Confinement
10:30 - 11:00	**Coffee Break**
SESSION 5	
Session Chair: Asst. Prof. Ana BAHAMONDE	
11:00 - 11:50	Prof. David PROCTER, University of Manchester, UK From Sulfonium Salts to Samarium Catalysis: New Radical Chemistry for Synthesis
11:50 - 12:10	Prof. Johannes C. L. WALKER, Universität Göttingen, Germany Photochemical Approaches to Bridged Bicyclic Architectures
12:10 - 12:30	Assoc. Prof. Sündüs ERBAŞ-ÇAKMAK, Necmettin Erbakan University, Türkiye Design and Synthesis of Pyridinium and Triazolium BODIPY Compounds: Versatile Tools for Biomedical Applications
12:30 - 14:00	**Lunch**
SESSION 6	
Session Chair: Dr. Cristina TRUJILLO	
14:00 - 14:50	Dr. Nicole GOODWIN, GlaxoSmithKline, USA Modern High Throughput Experimentation in Medicinal Chemistry
14:50 - 15:10	Prof. Oleg LARIONOV, The University of Texas at San Antonio Acridine Photocatalysis for Efficient Organic Synthesis
15:10 - 15:30	Assoc. Prof. Bilal NİŞANCI, Atatürk University, Türkiye Effective Perspectives in Organic Synthesis: New Methods for Halogenation, Deoxygenation and Hydrothiolation Strategies

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15:30 - 16:00	**Coffee Break**
SESSION 7	
Session Chair: Assoc. Prof. İrem KULU	
16:00 - 16:50	**ATABAY Lecture Series** Prof. Paul KNOCHEL, Ludwig-Maximilians-Universität, Germany Functionalization of N-Heterocycles Using Zn- and Mg-Organometallics
SESSION 8	
Conference Hall **Session Chair: Assoc. Prof. Çağatay DENGİZ**	**Odeon Hall** **Session Chair: Assoc. Prof. Yunus E. TÜRKMEN**
16:50 - 18:00	Short Oral Presentations
18:00 - 19:30	Poster Session
19:30 - 21:00	**Dinner**
Wednesday, March 6, 2024	
SESSION 9	
Session Chair: Prof. Olga Garcia MANCHEÑO	
09:00 - 09:50	Prof. Joanna WENCEL-DELORD, University of Wurzburg, Germany Metal- or Metal-Free? Complementarity Towards the Sustainable Synthesis of Complex Molecules via C-H Functionalization
09:50 - 10:10	Prof. Mario WASER, Johannes Kepler University Linz, Austria Isochalcogenourea-Catalyzed Activation of Allenoates
10:10 - 10:30	Prof. Barış YÜCEL, İstanbul Technical University, Türkiye 1,3-Dithianyl Substituted Propargylamines for the Synthesis of Sulfur-containing Heterocycles
10:30 - 11:00	**Coffee Break**
SESSION 10	
Session Chair: Prof. Mario WASER	

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11:00 - 11:50	Prof. Mustafa EMRULLAHOGLU, İzmir Institute of Technology, Türkiye Innovative Approaches to Crafting Molecular Platforms for Fluorescence Sensing, Bioimaging and Photodynamic Therapy
11:50 - 12:10	Assoc. Prof. Meera MEHTA, University of Oxford, UK Zintl Ions as Synthetic Tools
12:10 - 12:30	Dr. Cristina TRUJILLO, The University of Manchester, UK Halogen-Bond-Based Organocatalysis Unveiled: Computational Design and Mechanistic Insights
12:30 - 14:00	**Lunch**
SESSION 11	
Session Chair: Assoc. Prof. Meera MEHTA	
14:00 - 14:20	Prof. Vittorio PACE, University of Turin, Italy Molecular Modification of Carbon-centered Platforms with C1-Homologating Agents
14:20 - 14:40	Dr. Florian F. MULKS, RWTH Aachen University, Germany Capturing Fleeting Divalent Carbodications with Ligands
14:40 - 15:00	Assoc. Prof. Esen BELLUR ATİCİ, DEVA Holding A.S., Türkiye Pharmaceutical Synthesis: Challenges and Mechanisms of Impurity Formation
15:00 - 15:20	Dilgam AHMADLI, Max-Planck-Institut für Kohlenforschung, Germany Standardized Approach for Diversification of Complex Small Molecules via Aryl Thianthrenium salts
15:20 - 16:00	**Coffee Break**
SESSION 12	
Session Chair: Prof. David PROCTER	
16:00 - 16:50	Prof. Jonathan CLAYDEN, University of Bristol, UK Exploiting Conformational Control: Defluorination, Deracemisation, and Directional Rotation
16:50	Closing Ceremony and Poster Awards
19:00 - 20:00	**Dinner**

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Thursday, March 7, 2024		
09:00 - 18:00	Excursion	
18:00	Return to the Hotel	
Short Oral Presentation Session 1		
Conference Hall **Session Chair: Assoc. Prof. Çağatay DENGİZ**		
SOT1	Buse Ayşen DÜNDAR	*Synthesis of 1,2-Dihydropyridine and Benzannulation Products*
SOT2	Esra KORKMAZ	*Synthesis of 1,3-Bis-Pyrazole Derivatives*
SOT3	Beyza HAMUR	*Synthesis of Novel Triazolopyridazine/pyrimidine Derivatives and Investigation of Inhibitor Effects on Receptor Tyrosine Kinase c-Met*
SOT4	Suay BİLGİN	*Development of an Efficient Heterogeneous Catalytic Method for the Aerobic Oxidation of Alcohols*
SOT5	Merve TEMEL	*A Single-Crystal-to-Single-Crystal Transformation Based on a Template-Directed [2+2] Photochemical Cycloaddition of Naphthalene-Derived Cinnamic Acids*
SOT6	Fatma ALBAYRAK HALAÇ	*A New Approach to the Synthesis of 1,2-Oxazepin and Derivatives*
SOT7	Berra LUSNA	*Design and Synthesis of New Indole-Pyrimidine Heterocyclic Compounds*
SOT8	Esra DÜNDAR	*The Enantioselective Addition of BODIPY to Isatin Derivatives by Bifunctional Quinine-Based Squaramide Organocatalysts*
SOT9	Begüm NEMUTLU	*Synthesis of Thiophene-Pyrrole-Thiophene Solid Matrix Anchored TEMPO Unit*
SOT10	Zeynep SELÇUK	*Synthesis of Bifunctional Recyclable Homogenous Macromolecular Organocatalysts*
SOT11	Emre Fatih EKER	*Design and Synthesis of Poly-Tpt Anchored Qunine Based Bifunctional Organocatalysts*
SOT12	Ezgi BAYER KÖMÜŞDOĞAN	*Synthesis of Stereogenic-at-Boron Fluorophores through Multicomponent Reactions Involving Boronic Acids, Salicylaldehydes, and 2-Formylpyrrole Hydrazones*
SOT13	Özlem GÜNDOĞDU AYTAÇ	*From Cyclohexene to Bicyclic Lactones: Bromination, Epoxidation, and Rearrangements*
SOT14	Ahmet ÇAĞAN	*The First Synthesis of Asymmetric Dipeptide Substituted Safinamide Derivatives; Investigation of MAO and AChE/BChE Inhibitions*

SOT15	Ahmet ÇAĞAN	*Synthesis and In silico Docking Studies of New Series of Racemic and Asymmetric Diols towards Carbonic Anhydrase and α-Glucosidase*
SOT16	Rüstem EBİRİ	*Synthesis of Heparin-Based AuNPs and Investigation of their Anticancer Properties*
SOT17	Meltem TAN UYGUN	*Synthesis of Novel Pyrazolo-Pyrazine-4(5H)-One Derivatives*
SOT18	Kübra İREN	*Electropolymerization Studies of Materials Having Carbazole Moiety*
Short Oral Presentation Session 2		
Odeon Hall		
Session Chair: Assoc. Prof. Yunus E. TÜRKMEN		
SOT19	Emrah KAVAK	*Synthesis and Characterization of Novel Benzothiophene Derivatives*
SOT20	Tymoteusz BASAK	*Unexpected Intricacies of Hawkins Olefination*
SOT21	Mustafa Z. KAZANCIOGLU	*Synthesis and Derivatization of Structures Containing Azepino[1,2-a]quinoline*
SOT22	İdris KARAKAYA	*Environmentally Friendly Azoxybenzene Synthesis from Nitrosobenzenes and Anilines*
SOT23	Mehmet ERŞATIR	*Extraction of Walnut Husks and Leaves Using Subcritical Water and Supercritical Carbon Dioxide Extraction Methods and Comparison the Antioxidant Activities of the Extracts*
SOT24	Onur DEMİRKOL	*Comparison the Phytochemicals of Sambucus Ebulus L. Leaves and Fruits obtained by Sub-critical Water Extraction*
SOT25	Ziya DAĞALAN	*Catalyst/Metal/Solvent-Free Markovnikov Hydrothiolation of Unactivated Alkenes with Dithiocarbamic Acids*
SOT26	Muhammed Hanifi ÇELİKOĞLU	*Deoxygenation of N-Heterocyclic N-Oxides with Selectfluor and Disulfane*
SOT27	Sevgi SARIGÜL ÖZBEK	*Diastereoselective Synthesis of 5-Benzylidene-3-p-Substituted Aryl-2-Thiohydantoin Derivatives*
SOT28	Osman Nuri ASLAN	*Synthesis of Potentially Pharmacologically Active Rhodanine Compounds Containing Sulfonate Group*
SOT29	Volkan DOLGUN	*Fullerenol Based Enzyme Mimics*
SOT30	Şenel TEKE TUNÇEL	*Determination of Rotational Energy Barrier Around C-N Bond on Chiral Hydrazide-Hydrazones: Dynamic ^{1}H NMR and DFT Studies*
SOT31	Doğukan DOYDUK	*Synthesis of Some New 1,3,4-oxadiazole Compounds with TADF Properties*

SOT32	Sümeyye ATİŞ	*Mechanochemical Ring Opening of Donor-Acceptor Cyclopropanes with Indolizines*
SOT33	Şule EROL GÜNAL	*Synthesis of 1-(1-piperidinecarbonyl)-3-(o-aryl)-thiourea Derivatives*
SOT34	Asaf Evrim EVREN	*Novel Pyridine-thiazolidinone Analogs: Design, Synthesize and Biological Evaluation*
SOT35	Osman KARAMAN	*β-Galactosidase Selective Si-Fluorescein Based Photosensitizer for Treatment of Brain Cancer*
SOT36	Hamdi ÖZKAN	*Synthesis of New Norcantharimide Derivatives that can be Used in the Treatment of Colon Cancer*
SOT37	Melek GÖKMEN KARAKAYA	*4-(cyclohexyloxy)phthalonitrile*
SOT38	Mohammad EL-KHATEEB	*Iron Chalcogenopropargylate Complexes: Synthesis, Characterization and Applications as CO Releasing Complexes*
SOT39	Hamdi ÖZKAN	*Synthesis, Spectroscopic Characterizations of Novel Norchantarimide Derivates*

Poster Session

P1	Yunus E. TÜRKMEN	*A Happy Alliance: How Benzofuran and Ynone Groups Lead to Intramolecular Through-Space Charge Transfer on a Naphthalene Spacer*
P2	Gabrielle ALLEN	*Vitamin B_{12} and Hydrogen Atom Transfer Co-catalyzed Ring Opening Hydrogenation of Strained Systems*
P3	Anıl YAVUZ	*A New Methodology for the Synthesis of Highly Substituted Chiral Piperazine Derivative*
P4	Elif AKAR	*Synthesis of Guaiazulene Amino Acid Derivative Using Amino Acid Functionalized Fullerene Derivatives*
P5	Özge ÖZDEMİR	*Development of a New Methodology for the Synthesis of Heterobicyclic Chiral Piperazine Precursors*
P6	Nurullah SARAÇOĞLU	*Catalyst- and Additive-free, Regioselective C6−H Alkylation of 1,2,3,4-Tetrahydroquinolines with Aziridines*
P7	Nurullah SARAÇOĞLU	*Hydrogen Bond-assisted C5-Alkylation of N-Protected Indoline with Aziridines*
P8	Mehmet Enes UZUN	*The synthesis of SNS-Lysine Functionalized Fullerene Derivative*
P9	Tatjana Gazivoda KRALJEVİĆ	*Synthesis and Antimicrobial Evaluation of Novel 1,2,3-Triazole Derivatives of Benzoxazolones and Benzoxazoles*
P10	Nazlıcan DOĞAN	*Investigation of Click-Type [2+2] Cycloaddition-Retroelectrocyclization Reactions of Symmetric Alkynes Activated with Methoxy Groups*
P11	Öznur ÖZTÜRK	*Metal Catalyst Free Synthesis of Novel Pyridine Derivatives*

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Synthesis of Novel Pyrazolo-pyrazine-4(5*H*)-one Derivatives

Meltem Tan-Uygun

Van Yüzüncü Yıl University, Faculty of Pharmacy, Deprtment of Pharmaceuitical Chemistry, Turkey

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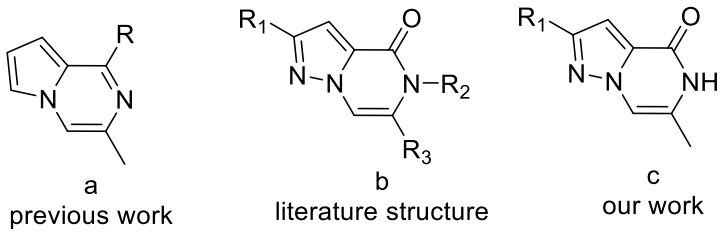
Heterocyclic compounds that include two nitrogen atoms have various biological activities. In particular nitrogen-fused bicyclic compounds such as pyrrolo[1,2-a]pyrazines have neuroleptic, cardiovaskular, immunosuppressive, antibacterial, anti-insect defensive properties and are also a potent and selective 5-HT_{2C} receptor agonists and selective 5-HT_3 receptor agonists.[1] However, in the literature, there are only few methods for the synthesis of pyrrolo[1,2-a]pyrazine compounds. For the reasons we have found a simple route to novel diverse 1,3-disubstituted pyrrolo[1,2-a]pyrazines by employing propargylation and intramolecular cyclization. The cyclization reactions were carried out with N-propargylated-2-acyl-pyrroles and ammonium acetate in the presence of cesium carbonate. (Scheme **1a**). The antiproliferative efect of all synthesized molecules was tested on a glioblastoma cell line (T98G).[1]

It has been observed that activity studies of bicyclic or only pyrazole derivatives containing the pyrazole ring have been limited conducted in the A549 cell line.[2] It has been reported that known derivatives have an antiproliferative effect at 10 μM concentrations, especially in the A549 cell line. The skeleton in the literature is mostly observed as pyrazolo[1,5-a] pyrazin-4(5*H*)-one (Scheme **1b**). This skeleton was derived from three different places and the functional groups used were also found to be quite limited. In this study, we became interested in the synthesis of novel pyrazolo[1,5-a] pyrazine-4(5*H*)-one derivatives through cyclization of starting compounds in the presence of Cs_2CO_3 and ammonium acetate (Scheme **1c**). Then, their biological activities against the A549 cell line will be investigated.



Scheme1. Some pyrrolo[1,2-a]pyrazine and pyrazolo[1,5-a] pyrazine-4(5*H*)-one derivatives

References:

1) Tan-Uygun, M. *Monatsh. Chem*. **2021**, 152: 513.
2) Uygun, M. T.; Amudi, K.; Turaçlı, İ. D.; Menges, N. *Mol. Dıvers*. **2021**, 1: 1.