



ISTANBUL AYDIN UNIVERSITY FACULTY OF PHARMACY

E-NEWSLETTER

1 JUNE - 30 JUNE 2026





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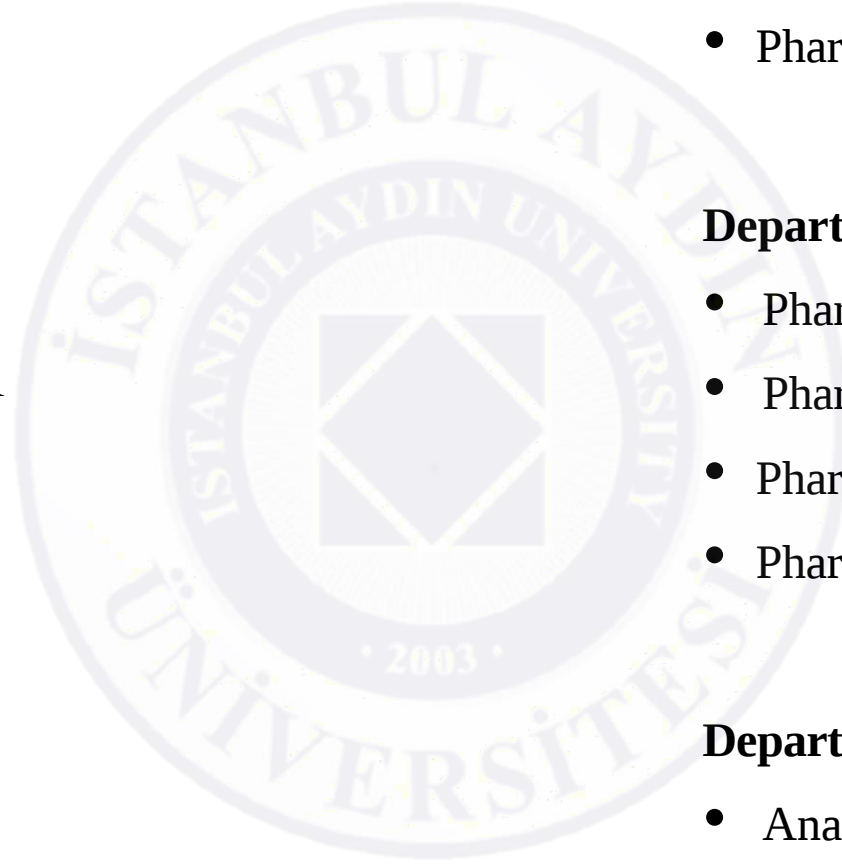
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FACULTY OF PHARMACY

June

Assoc. Prof. Dr. Şebnem Garip Ustaoglu, faculty member of the Department of Biochemistry, has published an article entitled "*The Effects of Early Postnatal Alcohol Exposure on Bone Molecular Composition in a Mouse Model*" in *Alcohol: Clinical and Experimental Research*, a Q2-indexed journal.

Alcohol: Clinical and Experimental Research



RESEARCH ARTICLE OPEN ACCESS

Biochemistry, Pharmacology, Physiology and Metabolism

The Effects of Early Postnatal Alcohol Exposure on Bone Molecular Composition in a Mouse Model

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Keywords: ATR-FTIR spectroscopy | bone | bone metabolism | bone quality spectral markers | bone-related hormonal markers | gavage-related stress | postnatal alcohol exposure

ABSTRACT

Background: Perinatal exposure to alcohol is a critical risk factor for long-term skeletal health in humans and has been demonstrated in rodent models. Early postnatal alcohol gavage exposure in mice is used to study third trimester toxicity in humans. However, further research is required to fully characterize the effects of alcohol on bone molecular composition and distinguish them from the alterations associated with gavage-related stress in mouse models.

Methods: Female mouse pups were assigned to untreated control (C), gavage control (GC), and alcohol-treated (A) groups. Between postnatal days 3 and 20, the A group received ethanol (3.0g/kg/day) by intragastric gavage, while the GC group underwent the same gavage procedure without any solution (neither milk nor ethanol). At postnatal day 90, femoral bone molecular composition and bone metabolism were evaluated by attenuated total reflection Fourier-transform Infrared (ATR-FTIR) spectroscopy and biochemical studies.

Results: Several ATR-FTIR-derived matrix and mineral-related alterations, including reduced total protein-related indices, lower collagen cross-link ratio, reduced mineral-to-matrix ratio, and increased crystallinity, were observed in both GC and A groups relative to untreated controls, indicating a substantial long-term influence of the gavage procedure itself. Compared with the GC, the A group showed additional selective differences, most notably reduced relative carbonate content and increased CTX-I levels. In the C group, serum 25(OH)D, PTH, and calcitonin levels differed from both GC and A groups, whereas osteocalcin was increased in the GC group relative to the C group, and no significant difference was observed between the GC and A groups.

Conclusion: Prolonged neonatal gavage was associated with substantial long-term changes in bone molecular composition and several circulating bone-related hormonal markers. Against this background, postnatal alcohol exposure was associated with additional selective differences, particularly in CTX-I and relative carbonate content. These findings highlight the importance of discriminating between the effect of the procedure and the effect of alcohol in developmental models based on repeated neonatal gavage.





FACULTY OF PHARMACY

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Our PharmAydın Student Club Received Three Separate Awards

The PharmAydın Student Club of the Faculty of Pharmacy achieved a remarkable success at the 2025–2026 Academic Year Award Ceremony organized by the Istanbul Aydın University Student Clubs Association.

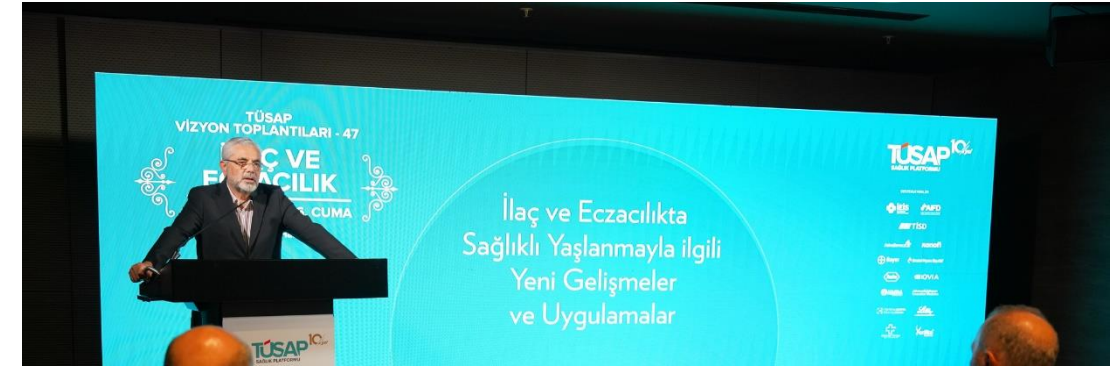
Ranking among the top eight out of 119 active student clubs at our university, the PharmAydın Student Club was awarded the "*Outstanding Achievement Award*," the "*Quality and Project Award*," and a "*Certificate of Appreciation*." We congratulate the Club's Executive Board and its advisors, Prof. Dr. Sevgi Karakuş and Asst. Prof. Dr. Cem Erkmén, and wish them continued success.



Participation in the 47th TÜSAP Vision Meeting

Asst. Prof. Dr. Gizem Sena Elagöz, faculty member of the Department of Pharmaceutical Toxicology, participated in the 47th TÜSAP Vision Meeting organized by the Turkish Health Platform (TÜSAP). The meeting was held on June 12, 2026, at BHT CLINIC Istanbul Tema Hospital under the theme "*New Developments and Applications Related to Healthy Aging in Pharmaceuticals and Pharmacy.*"

The opening speech of the program was delivered by Prof. Dr. Sabahattin Aydın, Chair of the TÜSAP Executive Board. This was followed by an assessment of current developments in the field of healthy aging by Prof. Dr. Ahmet Ayar, President of the Turkish Medicines and Medical Devices Agency (TİTCK). During the workshop session, industry representatives, academics, and healthcare professionals came together to exchange views. Overall, the event contributed to strengthening industry - academia collaboration.





FACULTY OF PHARMACY

June

Structural Chemistry
<https://doi.org/10.1007/s11224-026-02825-2>

RESEARCH



Interplay and cooperativity of non-covalent interactions in water-mediated supramolecular assembly of a 1,2,3-triazole–quinoxalin-2-one derivative

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Abstract

The design of organic molecular crystals with tailored properties requires a detailed understanding of the non-covalent interactions governing their assembly. In this context, a novel triazole–quinoxaline derivative, 1-((1-(2-hydroxyethyl)-1H-1,2,3-triazol-4-yl)methyl)-3-phenylquinoxalin-2(1H)-one, was synthesized and characterized both structurally and computationally in the solid state. The asymmetric unit contains two independent molecules (A and B, $Z' = 2$) and two water molecules, which form a three-dimensional supramolecular network through O–H...O, C–H...N, π – π , and C–H... π interactions. Crystallographic analysis reveals subtle conformational differences between A and B that are correlated with variations in π – π stacking geometries and hydrogen-bonding patterns, reflecting the interplay between conformational flexibility and supramolecular assembly. Hirshfeld surface analysis quantifies contact contributions, while MEP mapping rationalizes noncovalent interaction preferences, and energy framework calculations provide the energetic basis of the crystal structure, including the role of solvent water molecules. Cooperative effects within the water-mediated O–H...O network were investigated using two trimers (A...water...B) employing density functional theory (B3LYP-D3(BJ)/def2-TZVPP), and both trimers exhibit positive cooperativity. Furthermore, QTAIM and NBO analyses reveal systematic increases in electron density at bond critical points and enhancements in donor–acceptor stabilization energies when both hydrogen bonds are present.

Keywords Triazole–quinoxaline · X-ray crystallography · Supramolecular interactions · Cooperative hydrogen bonding · Density functional theory · QTAIM · NBO

Asst. Prof. Dr. Shafeek Buhlak, faculty member of the Department of Pharmaceutical Chemistry, has published an article entitled *"Interplay and Cooperativity of Non-Covalent Interactions in Water-Mediated Supramolecular Assembly of a 1,2,3-Triazole–Quinoxalin-2-One Derivative"* in *Structural Chemistry*, a Q3-indexed journal.



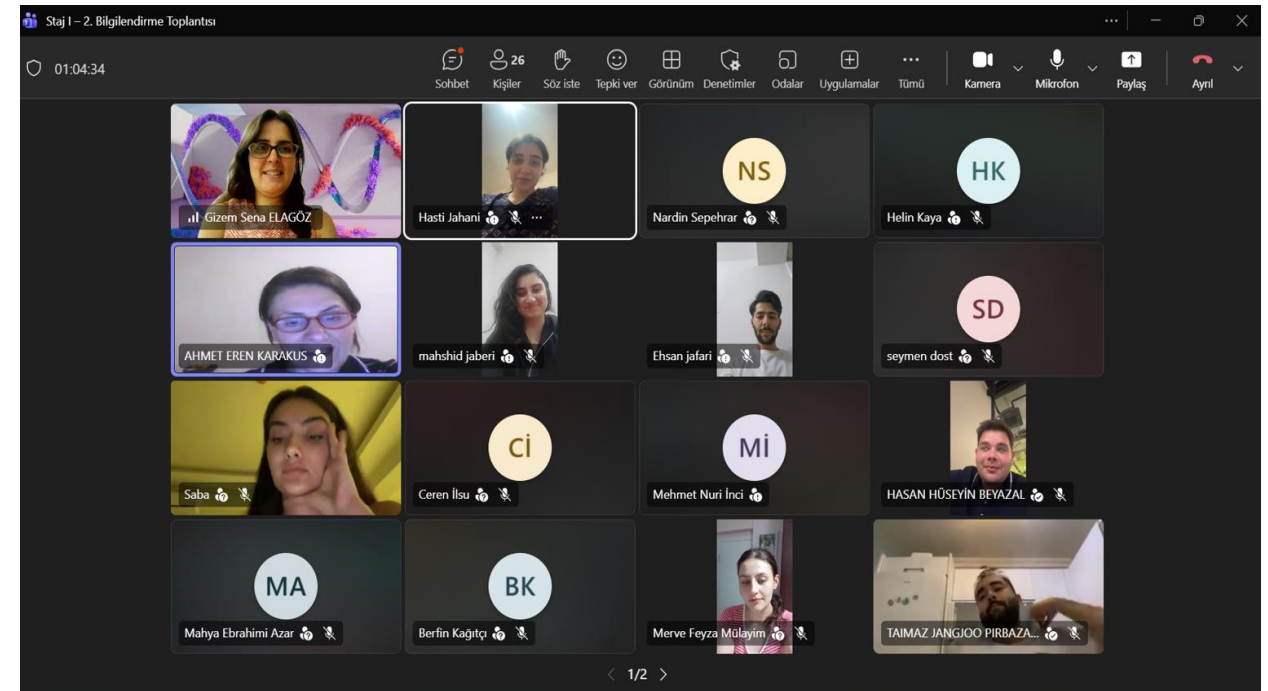
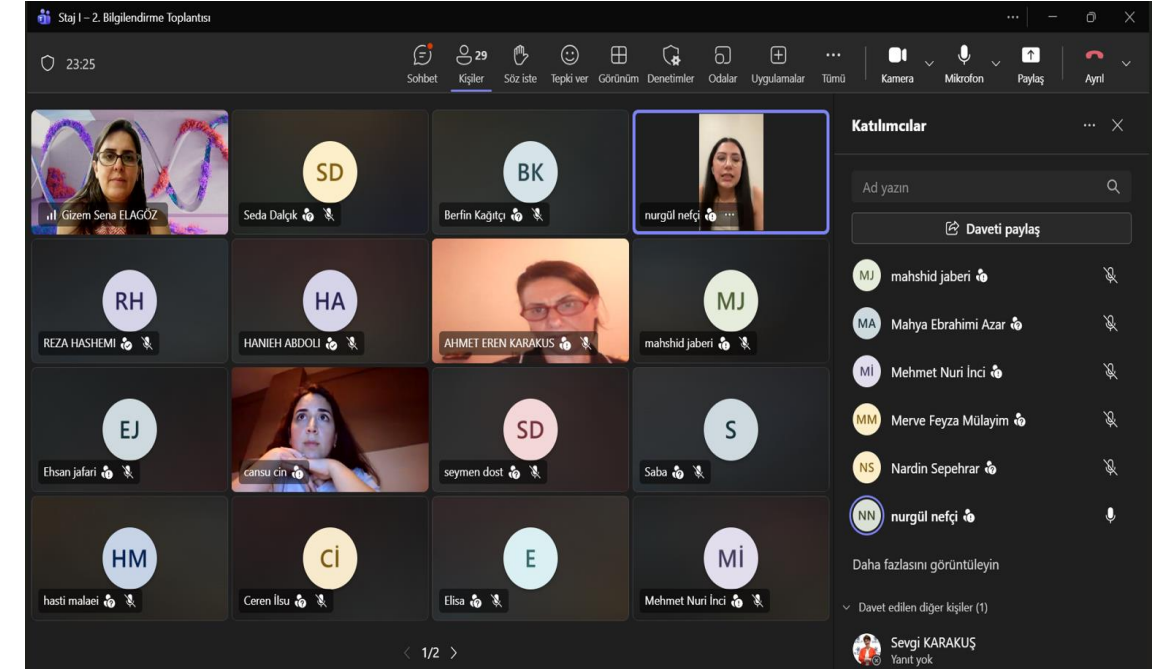
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The Second Information Meeting for the Internship I Process Was Held

The Second Information Meeting on the Internship I Process for 2nd year students of the Faculty of Pharmacy Turkish Program was held online on June 16, 2026.

Conducted by Internship Committee member Asst. Prof. Dr. Gizem Sena Elagöz, the meeting covered fundamental information about the internship process, students' responsibilities, and pharmacists' expectations of interns. Pharmacist Cansu Cin Aladağ and Assistant Pharmacist Nurgül Nefçi shared their experiences during the meeting, and students' questions were also answered.





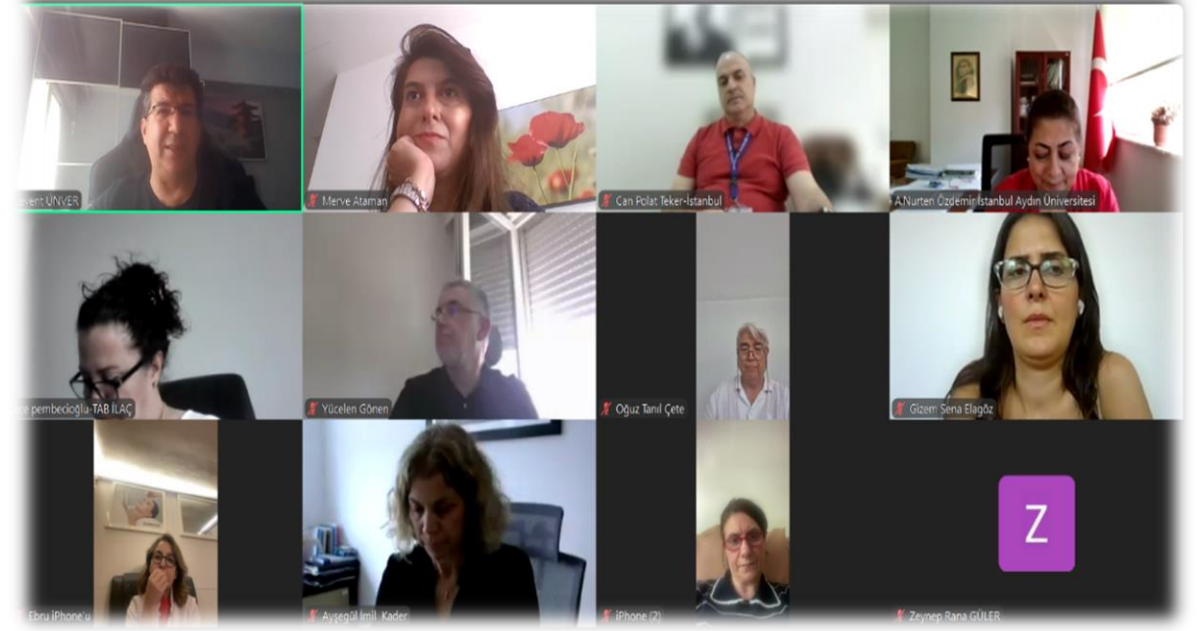
FACULTY OF PHARMACY

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Faculty of Pharmacy External Stakeholder Meeting Was Held

The Faculty of Pharmacy External Stakeholder Meeting was held online on June 17, 2026. During the meeting, the educational activities and curriculum carried out in the Spring Semester of the 2025–2026 Academic Year were evaluated in light of the opinions and suggestions of external stakeholders.

We would like to thank Dr. Can Polat Teker, Dr. Pharm. Zeynep Rana Güler, Chemical Eng. Ece Pembecioğlu, Pharm. Levent Ünver, Pharm. Yücelen Gönen, Pharm. Ayşegül İmil Kader, Pharm. Oğuz Tanıl Çete, Pharm. Ebru Acar, and Pharm. Işıl Ağış for their valuable contributions.





FACULTY OF PHARMACY

June

Prof. Dr. Sevgi Karakuş, our Vice Dean and faculty member of the Department of Pharmaceutical Chemistry, has published an article entitled "*Structural, Spectroscopic, Computational, Molecular Docking and NLO Analysis of a Novel 1,3,4-Oxadiazole*" in the *Journal of the Indian Chemical Society*, a Q2-indexed journal.

Journal of the Indian Chemical Society 103 (2026) 102814



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Structural, spectroscopic, computational, molecular docking and NLO analysis of a novel 1,3,4-oxadiazole

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ABSTRACT

In this study, a new 1,3,4-oxadiazole derivative, N-benzyl-5-[2-(3-trifluoromethylphenyl) amino]phenyl-1,3,4-oxadiazol-2-amine, was synthesized and comprehensively characterized using experimental and theoretical methods. The compound was obtained in 79% yield, and its structure was investigated by FT-IR, ¹H NMR, ¹³C NMR, LC-MS, HSQC and single-crystal X-ray diffraction techniques. XRD analysis revealed that the molecule crystallizes in the monoclinic P2₁/c space group, and the structural parameters showed strong agreement with the DFT-optimized geometries (B3LYP/6-31G(d,p) and cc-pVDZ). Hirshfeld surface analysis indicated that H...H, C...H and H...F contacts dominate the crystal packing. Frontier molecular orbital (FMO) calculations demonstrated a HOMO-LUMO energy gap of approximately 4.1 eV, suggesting moderate chemical reactivity and stability. MEP, NCI-RDG, ELF and LOL analyses further clarified the electronic distribution and non-covalent interactions supporting structural stability. Nonlinear optical (NLO) calculations revealed that the compound possesses a first-order hyperpolarizability higher than urea and greater than KDP, indicating promising NLO potential. Molecular docking studies against human butyrylcholinesterase (PDB: 4BDS) showed a binding affinity of -7.8 kcal/mol with multiple stabilizing interactions, suggesting potential anti-Alzheimer's activity. Overall, the combined experimental and computational findings highlight the compound as a promising candidate for future optical and biological applications.



Our Faculty Member Served on a PhD Thesis Defense Committee

Asst. Prof. Dr. Merve Ataman, faculty member of the Department of Pharmaceutical Microbiology, served as a committee member on June 25, 2026, at the PhD thesis defense of Research Assistant Bekir Özer, held at the Department of Pharmaceutical Microbiology, Faculty of Pharmacy, Istanbul University, under the supervision of Prof. Dr. Berna Özbek Çelik. The thesis was entitled "*Comparative Investigation of Various Antibiotics with In Vitro Synergistic Effect against Non-Fermentative Bacteria in the Galleria mellonella Infection Model.*"





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Our Faculty Member Asst. Prof. Dr. Cem Erkmen Has Been Awarded the Title of Associate Professor

Asst. Prof. Dr. Cem Erkmen, faculty member of the Department of Analytical Chemistry, has been awarded the title of Associate Professor in the field of Analytical Chemistry in Pharmacy, following an evaluation conducted by the Interuniversity Board.

We congratulate our faculty member on this significant academic achievement and wish him continued success in his academic career.





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uCAIR Project Consortium Meeting Was Held

The quarterly consortium meeting of the "*Chemical Analysis Imaging with Raman (uCAIR)*" project, carried out under the EU-funded HORIZON-CL4-2023-DIGITAL-EMERGING-01 call, was held online on June 29, 2026.

Assoc. Prof. Dr. Şebnem Garip Ustaoglu, who serves as Principal Investigator of Work Package 7 (WP7) and lead of WP7.2 within the project, shared the work carried out by the Turkish team with the consortium members. The presentation reported promising findings on the early diagnosis of bladder cancer using FTIR and Raman spectroscopy, and the studies contributing to the project's objectives were well received by the consortium members.



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