Israel

HAN-P-35

Micha Fridman

Professor, Tel Aviv University
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Website	https://www.fridman-lab.sites.tau.ac.il/
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Research Field(s)	Chemical Biology; Chemical Microbiology; Antimicrobials; Glycochemistry; Glycobiology

Academic Career

B.A., 2000, Technion – Israel Institute of Technology; M.Sc., 2001, Technion – Israel Institute of Technology (advisor: Prof. Timor Baasov); Ph.D., 2005, Technion – Israel Institute of Technology (advisor: Prof. Timor Baasov); Postdoctoral Training, 2005-2008, Harvard University (advisor: Prof. Daniel E. Kahne); Senior Lecturer, 2008-2013, Tel Aviv University; Senior Lecturer with Tenure, 2013-2016, Tel Aviv University; Associate Professor, 2016-2020, Tel Aviv University; Professor, 2020-present, Tel Aviv University.

Selected Publications

1. Localizing Antifungal Drugs to the Correct Organelle Can Markedly Enhance their Efficacy. Benhamou, R. I., et al. Angew. Chem. Int. Ed., 57(21), 6230–6235 (2018).

2. Cationic Amphiphiles Induce Macromolecules Denaturation and Organelle Decomposition in Cells of Fungal Pathogens. Jaber, Q. Z., et al. Angew. Chem. Int. Ed., 57(50), 16391–16395 (2018).

3. Chemical Modifications Reduce Auditory Cell Damage Induced by Aminoglycoside Antibiotics. Louzoun Zada, S., et al. J. Am. Chem. Soc., 142, 3077–3087 (2020).

4. Elevated Vacuolar Uptake of Fluorescently Labeled Antifungal Drug Caspofungin Predicts Echinocandin Resistance in Pathogenic Yeast. Jaber, Q. Z., et al. ACS Cent. Sci., 6(10), 1698–1712 (2020). Highlighted in: Boon Shing, L., et al. ACS Cent. Sci., 6(10), 1651–1653 (2020).

5. Benzylic Dehydroxylation of Echinocandin Antifungal Drugs Restores Efficacy against Resistance Conferred by Mutated Glucan Synthase. Logviniuk, D., et al. J. Am. Chem. Soc., 144(13), 5965–5975 (2022).

6. Reshaping Echinocandin Antifungal Drugs To Circumvent Glucan Synthase Point-Mutation-Mediated Resistance. Jospe-Kaufman, M., et al. Angew. Chem. Int. Ed., 63(9), e202314728 (2024).

7. Enzymatic Activity Profiling Using an Ultra-Sensitive Array of Chemiluminescent Probes for Bacterial Classification and Characterization. Shelef, O., et al. J. Am. Chem. Soc., 146(8), 5263–5273 (2024).

8. Chiral Fluorescent Azole Probes Shed Light on Resistance, Time-Dependent Uptake and Subcellular Distribution in Candida Species. Koren, V., et al. JACS Au, 4(8), 3157–3169 (2024).

Why My Lab?

Prof. Micha Fridman's Laboratory at Tel Aviv University is leading research on chemical microbiology,

focusing on both antifungal and antibacterial compounds. The lab aims to understand microbial resistance mechanisms and develop new strategies for drug design. Key areas of research include targeted drug delivery, carbohydrate-based antimicrobial compounds, and using advanced imaging techniques to visualize drug uptake and distribution within microbial cells. This work helps identify drug resistance mechanisms and new therapeutic targets. Equipped with state-of-the-art organic chemistry, microbiology, and fluorescence microscopy labs, Prof. Fridman's research combines synthetic chemistry and advanced imaging to tackle the global challenge of antimicrobial resistance.