

CURRICULUM VITAE

Name-Surname: Fatma Gizem Avcı

Academic Title: Asst. Prof.

Address: Üsküdar Üniversitesi Altunizade Mah. Üniversite Sokağı No:14 34662 İstanbul

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Education:

Degree	Department	University	Year
Bachelor	Bioengineering	Ege University	2010
MSc	Bioengineering	Ege University	2013
PhD	Bioengineering	Marmara University	2018

MSc Thesis Title and Supervisor(s):

Thesis Title: Assessment of 1,3-propanediol Production by Membrane Supported Bioreactor

Supervisor: Prof. Dr. Nuri Azbar

PhD Thesis Title and Supervisor(s):

Thesis Title: Investigation of Aporphine Alkaloids for Their Antimicrobial Activities

Supervisor: Prof. Dr. Berna Sarıyar Akbulut

Academic Titles:

Title	Department	Year
Asst. Prof.	Üsküdar University, Department of Bioengineering	2019-
Research Asst.	Marmara University, Institute of Pure and Applied Sciences	2013-2019
Research Asst.	Adana Science and Technology University, Department of Bioengineering	2013-2019

Projects

1. Inhibition and characterization of the inhibition dynamics of the type 4 pili protein complex (Researcher) TÜBİTAK (1001): MAG-120M225, 01/08/2020-Cont.
2. Evaluation of the alkaloids of the aporphine family as inhibitors of different efflux pumps using *in vitro* and *in silico* methods (Researcher) Marmara University Scientific Research Project: FEN-B-120917-0534, Completed.
3. Systems Biology Approach for Integrative OMICs Data Analysis to Investigate the Action of Antimicrobial Agents (Scholar) TUBİTAK: MAG-113M052, Completed.
4. Determination of the intracellular targets of different antimicrobial alkaloids using real time PCR and microarray technologies. Marmara University Scientific Research Project: FEN-A-050614-0238 (Researcher), Completed.

5. Investigation of the effect of the allosteric site of beta-lactamase for ligand recognition and binding (Scholar) TUBİTAK: MAG-113M533, Completed.

Administrative Duties:

Head of Bioengineering Department	2022-Cont.
Head of Bioengineering Master Program	2022- Cont.
Deputy Head of Bioengineering Department	2021-2022

The Undergraduate and Graduate Courses Given:

Academic Year	Semester	Course Name	Hours	
			Theoretical	Practical
2019-2020	Fall	CHEM103-Fundamentals of Chemistry	3	2
		CHEM203-Physical Chemistry	3	0
		BEN317-Introduction to Biotechnology	3	0
		BEN491-Graduation Project	2	2
		RCUL101-University Culture I	0	2
	Spring	BEN102-Introduction to Bioengineering	2	0
		BEN202-Biochemistry	3	0
		BEN207-Bioengineering Laboratory	0	4
		BEN492-Graduation Thesis	1	8
		RCUL102-University Culture II	0	2
		BM534-İlaç Biyoteknolojisi*	3	0
2020-2021	Fall	CHEM103-Fundamentals of Chemistry	3	2
		CHEM203-Physical Chemistry	3	0
		BEN317-Introduction to Biotechnology	3	0
		BEN491-Graduation Project	2	2
		BM531-Protein Yapı ve Fonksiyonu*	3	0
	Spring	BEN102- Introduction to Bioengineering	2	0
		BEN202-Biochemistry	3	0
		BEN204-Statistics for Bioengineering	2	0
		BEN207-Bioengineering Laboratory I	0	4
		BEN492-Graduation Thesis	1	8
		BM534-İlaç Biyoteknolojisi*	3	0
2021-2022	Fall	CHEM203-Physical Chemistry	3	0
		BEN317-Introduction to Biotechnology	3	0
		BEN491-Graduation Project	2	2
		BM531-Protein Yapı ve Fonksiyonu*	3	0
	Spring	BEN102-Introduction to Bioengineering	2	0
		BEN202-Biochemistry	3	0
		BEN207-Bioengineering Laboratory I	0	4
		BEN492-Graduation Thesis	1	8
		BM534-İlaç Biyoteknolojisi*	3	0
2022-2023	Fall	CHEM203-Physical Chemistry	3	0
		BEN317-Introduction to Biotechnology	3	0
		BEN491-Graduation Project	2	2

		BM531-Protein Yapı ve Fonksiyonu*	3	0
	Spring	BEN102-Introduction to Bioengineering	2	0
		BEN202-Biochemistry	3	0
		BEN207-Bioengineering Laboratory I	0	4
		BEN492-Graduation Thesis	1	8

*MSc courses

PUBLICATIONS

A. Articles published in internationally refereed journals (SCI & SSCI & Arts and Humanities)

1. **Avcı FG**, Tastekil I, Jaisi A, Ozbek Sarica P, Sariyar Akbulut B, 2022, A review on the mechanistic details of OXA enzymes of ESKAPE pathogens. *Pathogens and Global Health*, 117(3):219-234.
2. Atas B, Aksoy CS, **Avcı FG**, Sayar NA, Ulgen K, Ozkirimli E, Sariyar Akbulut B, 2022, Carvacrol Enhances the Antimicrobial Potency of Berberine in *Bacillus subtilis*. *Current Microbiology*, 79:135.
3. Serçinoğlu O, Senturk D, Altinisik Kaya FE, **Avcı FG**, Tomašič T, Ozbek P, Orelle C, Jault JM, Sariyar Akbulut B, 2020, Identification of novel inhibitors of the ABC transporter BmrA. *Bioorganic Chemistry*, 105: 104452.
4. Aksoy CS, **Avcı FG**, Ugurel OM, Atas B, Sayar NA, Sariyar Akbulut B, 2020, Potentiating the activity of berberine for *Staphylococcus aureus* in a combinatorial treatment with thymol. *Microbial Pathogenesis*, 149:104542.
5. **Avcı FG***, Atas B, Aksoy CS, Kurpejovic E, Gulsoy Toplan G, Gurer C, Guillerminet M, Orelle C, Jault JM, Sariyar Akbulut B, 2019, Repurposing bioactive aporphine alkaloids as efflux pump inhibitors. *Fitoterapia*, 104371 (*Corresponding author).
6. Altinisik Kaya FE, **Avcı FG**, Sayar NA, Kazan D, Sayar A, Sariyar Akbulut B, 2018, What are the multi-omics mechanisms for adaptation by microorganisms to high alkalinity? A transcriptomic and proteomic study of a *Bacillus* strain with industrial potential. *OMICS: A Journal of Integrative Biology*, 22(11):717-732.
7. **Avcı FG**, Sariyar Akbulut B, Ozkirimli E, 2018, Membrane active peptides and their biophysical characterization (Review). *Biomolecules*, 8(3):77.
8. **Avcı FG**, Altinisik FE, Karacan I, Senturk Karagoz D, Ersahin S, Eren A, Sayar NA, Vardar Ulu D, Ozkirimli Olmez E, Sariyar Akbulut B, 2018, Targeting a hidden site on class A beta-lactamases. *Journal of Molecular Graphics and Modelling*, 84:125-133.
9. **Avcı FG**, Sayar NA, Sariyar Akbulut B, 2018, An OMIC approach to elaborate the antibacterial mechanisms of different alkaloids. *Phytochemistry*, 149: 123-131.
10. Ayyildiz D, Arga KY, **Avcı FG**, Altinisik FE, Gurer C, Gulsoy G, Wozny K, Bruegger B, Mertoglu B, Kazan D, Sariyar Akbulut B, 2017, Transcriptomic analysis displays the effect of (-)-roemerine on the motility and nutrient uptake in *Escherichia coli*. *Current Genetics*, 63(4):709-722.

11. Budeyri-Gokgoz N*, **Avci FG***, Karaosmanoglu K, Alaybeyoglu B, Ozkirimli Olmez E, Sayar NA, Kazan D, Sariyar Akbulut B, 2016, Response of *Escherichia coli* to prolonged berberine exposure, *Microbial Drug Resistance*, 23(5):531-544 (*Equal contribution).
12. **Avci FG**, Altinisik FE, Vardar Ulu D, Ozkirimli Olmez E, Sariyar Akbulut B, 2016, An evolutionarily conserved allosteric site modulates beta-lactamase activity. *Journal of Enzyme Inhibition and Medicinal Chemistry*, 31(S3):33-40.
13. Maervoet VET, De Maeseneire SL, **Avci FG**, Beauprez J, Soetaert WK, De Mey M, 2016, High yield 1,3-propanediol production by rational engineering of the 3-hydroxypropionaldehyde bottleneck in *Citrobacter werkmanii*. *Microbial Cell Factories*, 15:23.
14. Maervoet VET, De Maeseneire SL, **Avci FG**, Beauprez J, Soetaert WK, De Mey M, 2014, 1,3-propanediol production with *Citrobacter werkmanii* DSM17579: effect of a dhaD knock-out. *Microbial Cell Factories*, 13:70.
15. **Avci FG**, Huccetogullari D, Azbar N, 2014, The effect of cell recycling on the production of 1,3-propanediol by *Klebsiella pneumonia*. *Bioprocess and Biosystems Engineering*, 37:513-519.

B. Assertions presented in international scientific congresses and published in the proceedings

1. Tastekil I, **Avci FG**, Sariyar Akbulut B, Sarica Ozbek P, 2022, Investigation of OXA enzyme inhibitors using computational tools (Poster), 8th International BAU Drug Design Congress, 15-17 December 2022, İstanbul/Turkey.
2. Kula C, **Avci FG**, Keskin O, Ozbek P, Sariyar Akbulut B, 2022, Investigation of the Inhibition of *Pseudomonas aeruginosa* Type IV Pili Elongation ATPases to Prevent Biofilm Formation (Poster), 4th Eurasia Biochemical Approaches & Technologies Congress (EBAT), 3-6 November 2022, Antalya/Turkey.
3. Ozcan A, Kula C, **Avci FG**, Keskin O, Ozbek P, Sariyar Akbulut B, 2022, Screening of FDA-Approved Natural Drugs as Anti-Virulence Agents Against *Pseudomonas aeruginosa* and *Neisseria meningitidis* (Oral), FEMS Conference on Microbiology, 30 June-2 July 2022, Belgrade/Serbia.
4. Senturk D, Sercinoglu O, Altinisik Kaya FE, Frlan R, Tomašič T, **Avci FG**, Ozbek Sarica P, Orelle C, Jault JM, Sariyar Akbulut B, 2020, New inhibitors of the BmrA pump identified through virtual screening (Oral), MuTaLig COST ACTION CA15135 4th WG meeting, 5-6 March 2020, Izmir/Turkey.
5. Aksoy CS, **Avci FG**, Ugurel OM, Sayar NA, Sariyar Akbulut B, 2018, Inhibition of berberine efflux by natural products to potentiate its activity in *Staphylococcus aureus* (Poster), EMBO Workshop: Bacterial Persistence and Antimicrobial Therapy, 10-14 June 2018, Ascona/Switzerland.
6. Sariyar Akbulut B, Atas B, Aksoy S, **Avci FG**, Sayar AA, 2017, Evaluation of active natural products as bacterial efflux pump inhibitors (Poster), EpiChemBio (CM1406) and

MuTaLig COST (CA15135) actions joint meeting-Annual meeting, 22-24 September 2017, Porto/Portugal.

7. **Avci FG**, Guillerminet M, Orelle C, Jault JM, Sariyar Akbulut B, 2017, Roemerine: A new multidrug resistance pump inhibitor? (Poster), 7th Congress of European Microbiologists (FEMS), 09-13 July 2017, Valencia/Spain.
8. **Avci FG**, Velioglu C, Recber E, Unsal C, Gulsoy G, Sariyar Akbulut B, 2016, Evaluation of Roemerine as a Multidrug Resistance Pump Inhibitor, 41st Federation of European Biochemical Societies (FEBS) Congress, 3-8 September 2016, Kusadasi/Turkey.
9. Ayyildiz, D, **Avci FG**, Arga KY, Sariyar Akbulut B, 2016, (-)-Roemerine limits carbohydrate uptake which leads to alternative nutrients as acetyl-CoA sources (Oral), 41st Federation of European Biochemical Societies (FEBS) Congress, 3-8 September 2016, Kusadasi/Turkey.
10. Altinisik FE, **Avci FG**, Sariyar-Akbulut, B, Denizci AA, Kazan D, 2016, Understanding alkaliphilic adaptation of *B. marmarensis sp. nov.* (Poster), 41st Federation of European Biochemical Societies (FEBS) Congress, 3-8 September 2016, Kusadasi/Turkey.
11. **Avci FG**, Sariyar-Akbulut B, 2016, Evaluation the effect of plant-derived natural products on *Bacillus subtilis* 168 proteome (Poster), FEBS-IUBMB Workshop on Biointeractomics: from bimolecular interactions to networks, 17-20 May 2016, Seville/Spain.
12. Altinisik FE, **Avci FG**, Sariyar-Akbulut B, Denizci AA, Kazan D, 2016, Investigation of proteome profile of alkaliphilic *Bacillus marmarensis sp nov* under different pH conditions (Poster), FEBS-IUBMB Workshop on Biointeractomics: from bimolecular interactions to networks, 17-20 May 2016, Seville/Spain.
13. Ayyildiz D, **Avci FG**, Budeyri-Gokgoz N, Arga KY, Sayar NA, Kazan, D, Wozny K, Bruegger B, Sariyar-Akbulut B, 2016, The plant derived alkaloid roemerine is involved in the modulation of motility in *Escherichia coli* (Poster), Biophysical Society 60th Annual Meeting, , 27 February-2 March 2016, Los Angeles/USA.
14. **Avci FG**, Sariyar Akbulut, B, 2015, Effect of three aporphine alkaloids on *Bacillus subtilis* 168 (Poster), The 29th Annual Symposium of the Protein Society, 22-25 July 2015, Barcelona/Spain.
15. Altinisik FE, **Avci FG**, Sariyar Akbulut B, Ozkirimli Olmez E, Vardar Ulu D, Karacan İ, Senturk D, 2015, Mutations of a conserved tryptophan residue of the TEM-1 β -lactamase (Poster), The 29th Annual Symposium of the Protein Society, 22-25 July 2015, Barcelona/Spain.
16. **Avci FG**, Ozkirimli Olmez E, Sariyar Akbulut B, 2014, The importance of a conserved residue of the H10 helix in beta-lactamase (Poster), 16th European Congress on Biotechnology, 13-16 July 2014, Edinburgh/Scotland.
17. **Avci FG**, Ozkirimli Olmez E, Sariyar Akbulut B, 2013, Investigation of an Allosteric Site of R-TEM-1 beta-lactamase (Poster), 6th International Bioengineering Congress, 12-15 November 2013, Kusadasi/Turkey.

18. Gezgin Y, Sargin S, Eltem R, Vardar-Sukan F, Bakı B, **Avcı G**, İltüzer H, Satılmış S, 2010, Determination of Optimum Conditions for *Trichoderma* Micropropagules Production in Shake Flasks and Static Culture (Poster), 5th International Bioengineering Congress, 16-20 June 2010, Izmir/Turkey.

C. National/international books or chapters in books:

C1. National/international books:

C2. National/international chapters in books:

1. **Avcı FG**, Atas B, Gulsoy Toplan G, Gurer C, Sariyar Akbulut B, 2021, Bölüm Adı: Antibacterial and antifungal activities of isoquinoline alkaloids of the Papaveraceae and Fumariaceae families and their implications in structure-activity relations, Studies in Natural Products Chemistry, Editör: Rahman A, Vol. 70, Sayfa: 87-118, Elsevier.
2. **Avcı FG**, Sayar NA, Sariyar Akbulut B, 2020, Bölüm Adı: Antibiyotik Üretimi, Fermente Ürünler Teknolojisi ve Mikrobiyolojisi, Editörler: Erkmen O, Erten H, Sağlam H, Nobel Akademik Yayıncılık, ISBN: 978-625-406-665-8, Sayfa: 721-738.

D. Articles published in national refereed journals:

1. Yılmaz D, **Avcı FG***, Sariyar Akbulut B, 2022, *Curvularia lunata*: A fungus for possible berberine transformation. International Journal of Secondary Metabolite, 9(1):66-73 (*Corresponding author).
2. Altınışik Kaya FE, Atas B, **Avcı FG***, 2021, Evaluation of silibinin as an efflux pump inhibitor in *Bacillus subtilis*. International Journal of Secondary Metabolite, 8(2):104-112 (*Corresponding author).

E. Assertions presented in national scientific congresses and published in the proceedings

1. **Avcı FG**, Ozkan SB, Sariyar Akbulut B, 2020, Determination of the Hidden Pockets in Beta-Lactamase Using Dynamic Coupling Index (Oral), 9. Ulusal Moleküler Biyoloji ve Genetik Kongresi, 19-20 December 2020, Online.