Biographical Sketch

Prof. Shai Rahimipour

Degrees

2003 - 2006	Post-Doctoral Research Fellow, Chemistry. The Scripps Research Institute, La Jolla, California. Topic of research: Self-assembled cyclic D,L-α-peptide and cyclic D,L-α-glycopeptides nanotubes as antibacterial and anticancer agents. Supervisor: Prof. M. Reza Ghadiri
2001 - 2003	Post-Doctoral Research Fellow, Chemistry and Photobiology, The Weizmann Institute of Science, Rehovot, Israel. Topic of research: Design, synthesis and biological evaluation of Hypericin and its analogs as potential agents for photodynamic therapy (PDT). Supervisor: Prof. Yehuda, Mazur
1993 - 2001	M.Sc./Ph.D. (combined), Organic Chemistry and Neurobiology. The Weizmann Institute of Science, Rehovot, Israel. Thesis title: Potential Cytotoxic Derivatives of GonadotropinReleasing Hormone (GnRH): Synthesis and Biological Evaluation. Supervisors: Prof. Mati Fridkin and Yitzhak Koch, Department of Organic Chemistry and Neurobiology. 1990 - 1993 B.Sc., Chemistry, Bar-Ilan University, Ramat-Gan, Israel

Employment

2006 - 2014	Senior Lecturer, Department of Chemistry, Bar-Ilan University.
2014 - present	Associate Prof., Department of Chemistry, Bar-Ilan University

Other Professional Activities

2017 – present	Member of institutional ethical committee – Bar-Ilan University
2014 – present	Member of institutional educational committee – Bar-Ilan University
2014	Co-Organizer, Functional Peptide and Protein Nanostructures, May 25th -28th, 2014, Tzuba Hotel, Kibbutz Tzuba, Israel
2007 - present	Member in editorial board of ARKIVOC Journal.
2007 - 2008	Member of the Organizing Committee of the 6th Medicinal Chemistry Conference, The Weizmann Inst. of Science.

Recognitions

2009 - 2010	Award, Self-assembled cyclic D,L-α-peptides as potent neuroprotective agents. Christians for Israel Chair in Medical Research.
2009 - 2010	Award, Characterization and development of novel selective inhibitors targeted at neurodegenerative matrix Metalloproteases, Bar-Ilan University, Office of the Rector.
2008 - 2009	Award, Cyclic glycopeptides with anticancer and anti-metastasis activity, The Elias, Genevieve and Geogianna Atol Charitable Trust.
2003 - 2006	Human Frontier Science Program (HFSP) long-term fellowship for postdoctoral research.
2003 - 2004	Fulbright Postdoctoral fellowship
June 2000	CaP CURE award for proposed research on new drug discovery
July 1999	ESCOM Awards for most outstanding poster relevant to drug discovery.

Research Interests: Neurodegenerative diseases (Multiple Sclerosis, Alzheimer's Disease, Parkinson's disease), Multidisciplinary research, supramolecular chemistry, Peptide Chemistry, Combinatorial Chemistry, Drug design

Selected Publications (Out of 56, *h*-index 25)

1. Habashi, M., Chauhan, P.S., Vutla, S.; Senapati, S., Diachkov, M., El-Husseini, A., Guérin, B., Lubell, W., Rahimipour, S. Aza-residue modulation of cyclic D,L-α-peptide nanotube assembly with enhanced anti-amyloidogenic activity, J. Med. Chem. 2023, 66, 3058-3072.
2. Habashi M, Vutla S, Tripathi K, Senapati S, Chauhan PS, Haviv-Chesner A, Richman M, Mohand SA, Dumulon-Perreault V, Mulamreddy R, Okun E, Chill JH, Guérin B, Lubell WD, Rahimipour S., Early diagnosis and treatment of Alzheimer's disease by targeting toxic soluble Aβ oligomers, Proc. Natl. Acad. Sci. U. S. A. 2022, 119:e2210766119.
3. Klose, D., Vemulapalli, S. P. B., Richman, M., Rudnick, S., Aisha, V., Abayev, M., Chemerovski, M., Shviro, M., Zitoun, D., Majer, K., Wili, N., Goobes, G., Griesinger, C., Jeschke, G., and Rahimipour, S. Cu(2+)-Induced self-assembly and amyloid formation of a cyclic D,L-alpha-peptide: structure and function, Phys. Chem. Chem. Phys. 2022, 24, 6699-6715.
4. Yeroslavsky, G., Richman, M., Gertler, A., Cohen, H. Y., Motiei, M., Popovtzer, R., Gottlieb, H. E., and Rahimipour, S. Polydopamine Nanoparticles Containing a Cisplatin Analog for Anticancer Treatment and Diagnostics, ACS Appl. Nano Mater. 2021, 4, 14126-14135.
5. Tzror-Azankot C., Betzer O., Sadan T., Motiei M. Rahimipour S. Popovtzer A., Popovtzer R. Glucose-functionalized liposomes for reducing false positives in cancer diagnosis. ACS Nano, 2021, 15, 1301-1309.
6. Beiderman M., Ashkenazy A., Segal E., Barnoy E. A., Motiei M., Sadan T., Salomon A.,. Rahimipour S, Fixler D., Popovtzer R. Gold nanorod-based bio-barcode sensor array for enzymatic detection in biomedical applications. ACS Appl. Nano. Mater. 2020, 3, 8414-8423.
7. Perelshtein I., Perkas N., Rahimipour S., Gedanken A., Bifunctional carbon dots—magnetic and fluorescent hybrid nanoparticles for diagnostic applications. Nanomaterials, 2020, 10, 1384
8. Barnoy, E. A., Motiei, M., Tzror, C., Rahimipour, S., Popovtzer, R. Fixler, D. Biological logic gate using gold nanoparticles and fluorescence lifetime imaging microscopy. ACS Appl. Nano. Mater. 2019, 2, 6527-6536.
9. Zilony-Hanin, N., Rosenberg, M., Richman, M., Yehuda, R., Schori, H., Motiei, M., Rahimipour, S., Groisman, A., Segal, E., Shefi, O. Neuroprotective effect of nerve growth factor loaded in porous silicon nanostructures in an Alzheimer's disease model and potential delivery to the brain. Small. 2019, 15, 1904203
10. Leshem, G., Richman, M., Lisniansky, L., Antman-Passig, M., Habashi, M., Graš lund, A., Wärmländer, S. K. Rahimipour, S. Photoactive chlorin e6 is a multifunctional modulator of amyloid-β aggregation and toxicity via specific interactions with its histidine residues. Chem. Sci. 2019, 10, 208-217
11. Frenkel-Pinter, M.; Richman, M.; Belostozky, A.; Abu-Mokh, A.; Gazit, E.*; Rahimipour, S.*; Segal, D*. Distinct effects of O-GlcNAcylation and phosphorylation of a tau-derived amyloid peptide on aggregation of the native peptide. Chemistry, 2018, 24, 14039–14043. (*Corresponding authors)
12. Belostozky, A.; Richman, M.; Lisniansky, E.; Tovchygrechko, A.; Chill, J. H.; Rahimipour, S. Inhibition of tau-derived hexapeptide aggregation and toxicity by a self-assembled cyclic D,L-alpha-peptide conformational inhibitor. Chem. Commun. 2018, 54, 5980-5983.
13. Yeroslavsky G., Lavi R., Alishaev A., Rahimipour S. Sonochemically-produced metal-containing polydopamine nanoparticles and their antibacterial and antibiofilm activity. Langmuir. 2016, 32, 52015012.
14. Chemerovski-Glikman, M., Rozentur-Shkop, E., Grupi, G., Richman, R., Getler, G., Cohen, H.Y., Wallin, C., Wärmländer, S., Haas, E., Gräslund, A., Chill, J.H., Rahimipour, S. Self-assembled cyclic D,L-apeptides as generic conformational inhibitors of a-synuclein aggregation and toxicity. Chem. Eur. J. 2016, 22, 14236-14246.
15. Frenkel-Pinter, M., Richman, M., Belostozky, A., Abu-Mokh, A., Gazit, E., Rahimipour, S.*, Segal, D.* Selective inhibition of aggregation and toxicity of a Tau-derived peptide using its glycosylated analogs. Chem. Eur. J. 2016, 22, 5945-52.

16. Shapira, R., Rudnick, S., Daniel, B., Viskind, O., Aisha, V., Richman, M., Perelman, A., Chill, J. H., Gruzman, A., Rahimipour, S. Multifunctional cyclic D,L-α-peptide architectures stimulate non-insulin dependent glucose uptake in skeletal muscle cells and protect them against oxidative stress, J. Med. Chem. 2013, 56, 6709-6718.
17. Wilik, S., Richman, M., Chemerovski, M., Wärmländer, S., Wahlström, A., Gräslund, A., Rahimipour, S. In Vitro and Mechanistic Studies of an Antiamyloidogenic Self- Assembled Cyclic D,L-a-Peptide Architecture. J. Am. Chem. Soc. 2013,135, 3474-3484.

Patents

1. Rahimipour, S.; Lubell, W. D.; Guerin, B.; Habashi, M.; Richman, M.; Chauhan, P. S.; Vutla, S.; Chingle, R.; Ait-Mohand, S.; Dumulon-Perreault, V. Azacyclopeptides for Early Assessment and Therapy of Amyloid Disease Pathology. US 63/077,627, 2020.
2. Richman M. and Rahimipour S. Surface modified proteinaceous spherical particles and uses thereof, PCT/IB2012/054037
3. Yeroslavsky, G. and Rahimipour S. Polydopamine nanocapsules and uses thereof. US Patent US20140193489

Research Funding History (Received Within the Past Five Years)

2021-2025 PI- New theranostic approaches for early assessment and therapy of Alzheimer's disease. Israel Science Foundation (1,080,000 NIS).

2020-2023 Co-PI- Multifunctional nanoparticles for early diagnosis of amyloidogenic diseases. German Israel Foundation (500,000 NIS)

2021-2023 PI - X-ray activated photodynamic therapy for targeted treatment of Alzheimer's disease. Ministry of Science. Israeli-Italian Call for Proposals on Scientific & Technological Cooperation (400,000 NIS)

2020-2021 PI – Developing and implementing new coatings to create surfaces that are resistant to harsh environmental conditions (433,000 NIS)

2019-2021 PI- Probing the in vivo efficacy of novel cyclic D,L-α-peptides to treat Huntington's disease. Israel Innovation Authority (880,000 NIS)

2019-2022 Co-PI - Novel medicinal approach for treatment of amyloidosis, Ministry of Science, Life sciences & Medicine (600,000 NIS)

2017-2020 PI - Multiplex point-of-care device for lung disease biomarkers in sputum, Ministry of Health, ERA-NET (450,000 NIS)

2017-2020 PI - Imaging agents for early assessing amyloid disease pathology, Ministry of Science, IsraelQuebec Cooperation (480,000 NIS) Co-PIs: Prof. William D. Lubell University of Montreal and Prof. Brigitte Guérin, University of Sherbrooke

2015-2018 Co-PI - Design and development of multifunctional nanoparticles for Alzheimer's disease diagnostic and therapy, Ministry of Science - Infrastructure Grants, (405,000 NIS).

Student/Postdoctoral Supervision

Master's Thesis [n=12]

Doctorate [n=6]

Post-doctorate [n=6]