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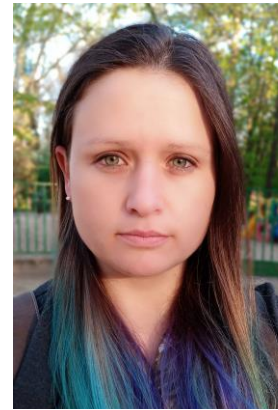
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Studies and positions held:

- **2018 - present PhD student**, University of Szeged, Biological Doctoral School, Biological Research Center, Szeged; Institute of Biochemistry, Synthetic and System Biological unit, Csaba Pál group
- **2015 - 2017 MSc** - University of Szeged, Faculty of Science and Informatics, Student: Biological Research Center, Szeged; Institute of Biochemistry, Synthetic and System Biological unit, Csaba Pál group
- **2013 - 2015 scientific assistant** University of Szeged, Faculty of Science and Informatics, Department of Physiology, Organization and Neuroscience, Endocrine laboratory
- **2008 - 2012 BSc** – University of Szeged, Faculty of Science and Informatics, Student: Department of Physiology, Organization and Neuroscience, Endocrine laboratory

Scientific metrics:

Number of publication: 12 papers (1 shared co-first authorship)

Aggregate impact factor: 92,412

Number of independent references: 285

H-index: 7

Scientific interest:

Antibiotic resistance is one of the highest health challenges of our time. It is projected that by 2050, antibiotic-resistant bacteria will become so prevalent that re-leading deaths will be an up to now treatable bacterial infection. The emerging health situation poses a serious challenge not only to the health care system but also to researchers. Antibiotics that have already been developed and used reliably so far are becoming increasingly ineffective, and newer and newer drugs are constantly being developed. Because of no new class of antibiotics has been discovered in the last fifty years, the antibiotics currently being licensed are chemical modifications to existing classical antibiotics. The greatest expectation for new agents is that new antibiotics should be less prone to resistance. In addition, it is poorly understood that there is this difference between the different bacterial species and their already multidrug-resistant subspecies in terms of resistance development. By predicting resistance processes, we can provide useful starting points and development tools for drug development researchers and companies.

Awards:

2019: Straub F. Brunó Young Scientist Award

2020: 3th place in Qualitas Biologica

2022: Stephen W. Kuffler PhD Award

Other qualifications:

2019: Course on Scientific presentation, Centre for Academic English, Imperial College London, UK

2020: Hamilton Robots programming course specialized in cell- and molecular biology, University of Szeged, Hungary

Publication:

Kaushik Nath Bhaumik, Anasztázia Hetényi, Gábor Olajos, Ana Martins, Réka Spohn, Lukács Németh, Balázs Jojart, Petra Szili, Anett Dunai, Pramod K. Jangir, **Lejla Daruka**, Imre Földesi, Diána Kata, Csaba Pál and Tamás A. Martinek. Rationally designed foldameric adjuvants enhance antibiotic efficacy via promoting membrane hyperpolarization. *Mol. Syst. Des. Eng.*, 2022, 7, 21-33

Durcik M, Nyerges Á, Skok Ž, Skledar DG, Trontelj J, Zidar N, Ilaš J, Zega A, Cruz CD, Tammela P, Welin M, Kimbung YR, Focht D, Benek O, Révész T, Draskovits G, Szili PÉ, **Daruka L**, Pál C, Kikelj D, Mašič LP, Tomašič T. New dual ATP-competitive inhibitors of bacterial DNA gyrase and topoisomerase IV active against ESKAPE pathogens. *Eur J Med Chem.* 2021 Mar 5;213:113200.

Nyerges, Akos, Tihomir Tomašič, Martina Durcik, Tamas Revesz, Petra Szili, Gabor Draskovits, Ferenc Bogar, Žiga Skok, Nace Zidar, Janez Ilaš, Anamarija Zega, Danijel Kikelj, **Lejla Daruka**, Balint Kintses, Balint Vasarhelyi, Imre Foldesi, Diána Kata, Martin Welin, Raymond Kimbung, Dorota Focht, Lucija Peterlin Mašič, and Csaba Pal. 2020. "Rational Design of Balanced Dual-Targeting Antibiotics with Limited Resistance." edited by J. A. G. M. de Visser. *PLoS Biology* 18(10):e3000819.

Kintses, Bálint, Pramod K. Jangir, Gergely Fekete, Mónika Számel, Orsolya Méhi, Réka Spohn, **Lejla Daruka**, Ana Martins, Ali Hosseinnia, Alla Gagarinova, Sunyoung Kim, Sadhna Phanse, Bálint Csörgő, Ádám Györkei, Eszter Ari, Viktória Lázár, István Nagy, Mohan Babu, Csaba Pál, and Balázs Papp. "Chemical-Genetic Profiling Reveals Limited Cross-Resistance between Antimicrobial Peptides with Different Modes of Action." *Nature Communications* 2019. 10(1):5731.

Spohn, Réka*, **Lejla Daruka***, Viktória Lázár, Ana Martins, Fanni Vidovics, Gábor Grézal, Orsolya Méhi, Bálint Kintses, Mónika Számel, Pramod K. Jangir, Bálint Csörgő, Ádám Györkei, Zoltán Bódi, Anikó Faragó, László Bodai, Imre Földesi, Diána Kata, Gergely Maróti, Bernadett Pap, Roland Wirth, Balázs Papp, and Csaba Pál. "Integrated Evolutionary Analysis Reveals Antimicrobial Peptides with Limited Resistance." *Nature Communications* 2019. 10(1):4538. *** Shared co-first authorship**

Szili, Petra, Gábor Draskovits, Tamás Révész, Ferenc Bogár, Dávid Balogh, Tamás Martinek, **Lejla Daruka**, Réka Spohn, Bálint Márk Vásárhelyi, Márton Czikkely, Bálint Kintses, Gábor Grézal, Györgyi Ferenc, Csaba Pál, and Ákos Nyerges. "Rapid Evolution of Reduced Susceptibility against a Balanced Dual-Targeting Antibiotic through Stepping-Stone Mutations." *Antimicrobial Agents and Chemotherapy* 2019. 63(9):1–15.

Bocsik, Alexandra, Ilona Gróf, Lóránd Kiss, Ferenc Ötvös, Ottó Zsíros, **Lejla Daruka**, Livia Fülöp, Monika Vastag, Ágnes Kittel, Norbert Imre, Tamás Martinek, Csaba Pál, Piroska Szabó-Révész, and Mária A. Deli. "Dual Action

of the PN159/KLAL/MAP Peptide: Increase of Drug Penetration across Caco-2 Intestinal Barrier Model by Modulation of Tight Junctions and Plasma Membrane Permeability." *Pharmaceutics* 2019. 11(2):73.

Szabó, Renáta, Rudolf Ménesi, Andor H. Molnár, Zita Szalai, **Lejla Daruka**, Gábor Tóth, János Gardi, Márta Gálfi, Denise Börzsei, Krisztina Kupai, Anna Juhász, Marianna Radács, Ferenc László, Csaba Varga, and Anikó Pósa. "New Metabolic Influencer on Oxytocin Release: The Ghrelin." *Molecules* 2019. 24(4):735.

Lázár, Viktória, Ana Martins, Réka Spohn, **Lejla Daruka**, Gábor Grézal, Gergely Fekete, Mónika Számel, P. K. Jangir, Bálint Kintses, Bálint Csörge, Ákos Nyerges, Ádám Györkei, András Kincses, András Dér, Frizsina R. Walter, Mária A. Deli, Edit Urbán, Zoltán Hegedus, Gábor Olajos, Orsolya Méhi, Balázs Bálint, Imre Nagy, Tamás A. Martinek, Balázs Papp, and Csaba Pál. "Antibiotic-Resistant Bacteria Show Widespread Collateral Sensitivity to Antimicrobial Peptides." *Nature Microbiology* 2018. 3(6).

Natan, Eviatar, Tamaki Endoh, Liora Haim-Vilmsky, Tilman Flock, Guilhem Chalancon, Jonathan T. S. Hopper, Bálint Kintses, Peter Horvath, **Lejla Daruka**, Gergely Fekete, Csaba Pál, Balázs Papp, Erika Oszi, Zoltán Magyar, Joseph A. Marsh, Adrian H. Elcock, M. Madan Babu, Carol V. Robinson, Naoki Sugimoto, and Sarah A. Teichmann. "Cotranslational Protein Assembly Imposes Evolutionary Constraints on Homomeric Proteins." *Nature Structural & Molecular Biology* 2018. 25(3):279–88.

Pósa, Anikó, Renáta Szabó, Krisztina Kupai, Anett Csonka, Zita Szalai, Médea Veszélka, Szilvia Török, **Lejla Daruka**, and Csaba Varga "Exercise Training and Calorie Restriction Influence the Metabolic Parameters in Ovariectomized Female Rats." *Oxidative Medicine and Cellular Longevity* 2015:1–8.

Kis, Gyöngyi K., Andor H. Molnár, **Lejla Daruka**, János Gardi, Kinga Rákosi, Ferenc László, Ferenc A. László, and Csaba Varga. "The Osmotically and Histamine-Induced Enhancement of the Plasma Vasopressin Level Is Diminished by Intracerebroventricularly Administered Orexin in Rats." *Pflügers Archiv - European Journal of Physiology* 2012. 463(4):531–36.