

## Fișa de indeplinire a standardelor minimale pentru abilitare:

### Anexa 1. Lista celor 50 de lucrări selectate numerotate 1-50

1. Bata Z., Molnár, Z., Madaras, E., Molnár, B., Sánta-Bell, E., Varga, A., Leveles, I., Qian, R., Hammerschmidt, F., **Paizs, C.\***, Vértessy, B. G., Poppe, L. Substrate Tunnel Engineering Aided by X-ray Crystallography and Functional Dynamics Swaps the Function of MIO-Enzymes *ACS Catalysis*, **2021**, *11*, 4538-4549. (I. f. 13.084) doi.org/10.1021/acscatal.1c00266
2. Nagy, Emma Z. A.; Tork, S. D.; Lang, P. A.; Filip, A.; Irimie, F. D.; Poppe, L.; Toşa, M. I.; Schofield, C. J.; Brem, J.; **Paizs, C.\***, Bencze, L. C. Mapping the Hydrophobic Substrate Binding Site of Phenylalanine Ammonia-Lyase from *Petroselinum crispum*. *ACS Catalysis*, **2019** *9*, 8825-8834. (I. f. 13.084) doi.org/10.1021/acscatal.9b02108
3. Dudu, A. M., Lăcătuş M. A., Bencze, L. C., **Paizs, C.**, Toşa, M. I., Green Process for the Enzymatic Synthesis of Aroma Compounds Mediated by Lipases Entrapped in Tailored Sol-Gel Matrices. *ACS Sustainable Chemistry & Engineering*, **2021**, *9*, 5461-5469. (I. f. 8.198) doi.org/10.1021/acssuschemeng.1c00965
4. Lăcătuş M. A., Dudu, A., Bencze, L. C., Katona, G., Irimie, F. D., **Paizs, C.**, Toşa, M. I. Solvent-Free Biocatalytic Synthesis of 2,5-bis-(Hydroxymethyl)Furan Fatty Acid Diesters from Renewable Resources. *ACS Sustainable Chemistry & Engineering*, **2020**, *8*, 1611-1617. (I. f. 8.198) doi: 10.1021/acssuschemeng.9b06442
5. Nagy-Győr, L., Lăcătuş, M., Balogh-Weiser, D., Csuka, P., Bódai, V., Erdélyi, B., Molnár, Z., Hornyánszky, G., **Paizs, C.\***, Poppe, L. (2019) How to turn yeast cells into sustainable and switchable biocatalyst? On-demand catalysis of ketone bioreduction or acyloin condensation. *ACS Sustainable Chemistry & Engineering*, **2019**, *7*, 19375-19383. (I. f. 8.198) doi: 10.1021/acssuschemeng.9b03367
6. Lăcătuş M. A., Bencze, L. C., Toşa, M. I., **Paizs, C.**, Irimie, F. D. Eco-Friendly Enzymatic Production of 2,5-Bis(hydroxymethyl)furan Fatty Acid Diesters, Potential Biodiesel Additives. *ACS Sustainable Chemistry & Engineering*, **2018**, *6*, 11353-11359. (I. f. 8.198) doi:10.1021/acssuschemeng.8b01206
7. Bencze, L. C., Bartha-Vári, J., Katona, G., Toşa, M. I., **Paizs, C.**, Irimie, F. D. Nanobioconjugates of *Candida antarctica* lipase B and single-walled carbon nanotubes in biodiesel production. *Bioresource Technology*, **2016**, *200*, 853-860. (I. f. 9.642) doi.org/10.1016/j.biortech.2015.10.072
8. Gog, A., Roman, M., Toşa, M.I., **Paizs C.**, Irimie, F. D. Biodiesel production using enzymatic transesterification - Current state and perspectives. *Renewable Energy* **2012**, *39*, 10-16. (I. f. 8.001) doi.org/10.1016/j.renene.2011.08.007
9. Farkas, E., Oláh, M., Földi, A., Kóti, J., Nagy, J., Gal, C. A., Paizs, C., Hornyánszky, G., Poppe, L. Chemoenzymatic Dynamic Kinetic Resolution of Amines in Fully Continuous-Flow Mode. *Organic Letters*, **2018**, *20*, 8052-8056. (I. f. 6.001) doi:10.1021/acs.orglett.8b036762

10. Bata, Z., Qian, R., Roller, A., Horak, J., Bencze, L. C., **Paizs, C.**, Hammerschmidt, F., Vértessy, B. G., Poppe, L. A Methylidene Group in the Phosphonic Acid Analogue of Phenylalanine Reverses the Enantioference of Binding to Phenylalanine Ammonia-Lyases. *Advanced Synthesis and Catalysis*, **2017**, 359, 2109-2120. (I. f. 5.851) doi:10.1002/adsc.201700428
11. Varga, A., Csuka, P., Sonosouphapa, O., Bánóczy, G., Toşa, M. I., Katona, G., Molnár, Z., Bencze, L. C., Poppe, L., **Paizs, C.\*** A novel phenylalanine ammonia-lyase from *Pseudozyma antarctica* for stereoselective biotransformations of unnatural amino acids. *Catalysis Today*, **2021**, 366, 185-194 (I. f. 6.766) doi: 10.1016/j.cattod.2020.04.002
12. **Paizs, C.**, Katona, A., Rétey, J. The Interaction of Heteroaryl-Acrylates and Alanines with Phenylalanine Ammonia-Lyase from Parsley. *Chemistry, a European Journal* **2006**, 12, 2739-2744. (I. f. 4.857) doi.org/10.1002/chem.200501034
13. **Paizs, C.**, Bartlewski-Hof, U., Rétey, J. (2007) Investigation of the Mechanism of Action of Pyrogallol–Phloroglucinol Transhydroxylase by Using Putative Intermediates. *Chemistry, a European Journal* **2007**, 13, 2805-2811. (I. f. 4.857) doi.org/10.1002/chem.200601053
14. Bencze, L. Cs., **Paizs, C.**, Toşa, M. I., Irimie, F. D. Rétey, J. Chemoenzymatic One-Pot Synthesis of both (R)- and (S)-aryl-1,2-ethanediols. *ChemCatChem* **2011**, 3, 343-346. (I. f. 5.686) doi.org/10.1002/cctc.201000295
15. Toşa, M. I., Brem, J., Mantu, A., Irimie, F. D., **Paizs C.\***, Rétey, J. The Interaction of Nitrophenylalanines with Wild Type and Mutant 4-Methylideneimidazole-5-one-less Phenylalanine Ammonia Lyase. *ChemCatChem* **2013**, 5, 779-783. (I. f. 5.686) doi.org/10.1002/cctc.201200536
16. Weiser, D., Varga, A., Kovács, K., Nagy, F., Szilágyi, A., Vértessy, B., **Paizs, C.**, Poppe, L. Bisepoxide Cross-Linked Enzyme Aggregates-New Immobilized Biocatalysts for Selective Biotransformations. *ChemCatChem* **2014**, 6, 1463-1469. (I. f. 5.686) doi.org/10.1002/cctc.201300806
17. Bartha-Vári, J., Toşa, M. I., Irimie, F. D., Weiser, D., Boros, Z., **Paizs, C.\***, Poppe, L. Immobilization of phenylalanine ammonia-lyase on single-walled carbon nanotubes for stereoselective biotransformations in batch and in continuous-flow modes. *ChemCatChem* **2015**, 7, 1122-1128. (I. f. 5.686) doi.org/10.1002/cctc.201402894
18. Filip, A., Nagy, E. Z. A., Tork, S. D., G. Bánóczy, G., Toşa, M. I., Irimie, F. D., Poppe, L., **Paizs, C.\***, Bencze, L. C. Tailored mutants of phenylalanine ammonia-lyase from *Petroselinum crispum* for the synthesis of bulky L- and D-arylalanines. *ChemCatChem*, **2018**, 10, 2627-2633. (I. f. 5.686) doi.org/10.1002/cctc.201800258
19. **Paizs, C.**, Diemer, T., Rétey, J. The putative coenzyme B<sub>12</sub>-dependent methylmalonyl-CoA mutase from potatoes is a phosphatase. *Bioorganic Chemistry* **2008**, 36, 261-264. (I. f. 5.275). doi.org/10.1016/j.bioorg.2008.06.002

20. Balogh-Weiser, D., Decsi, B., Krammer, R., Dargó G., Ender F., Mizsei, J., Berkecz, R., Gyarmati, B., Szilágyi, A., Tótság, R., **Paizs, C.**, Poppe, L., Balogh, G. T. (2020) Magnetic Nanoparticles with Dual Surface Functions-Efficient Carriers for Metalloporphyrin Catalyzed Drug Metabolite Synthesis in Batch and Continuous-Flow Reactors. *Nanomaterials*, **2020**, *10*, 2329. (I. f. 5.076) doi: 10.3390/nano10122329
21. Nagy, E. Z. A.; Nagy, C. L., Filip, A.; Nagy, K., Gál, E.; Tótság, R.; Poppe, L.; **Paizs, C.**; Bencze, L. C. Exploring the substrate scope of ferulic acid decarboxylase (FDC1) from *Saccharomyces cerevisiae*. *Scientific Reports*, **2019**, *9*, 647. (I. f. 4.38) doi:10.1038/s41598-018-36977-x
22. Tork, S. D., Nagy, E. Z. A., Cserepes, L., Bordea, D. M., Nagy, B., Toşa, M. I., **Paizs, C.**, Bencze, L. C. The production of L- and D-phenylalanines using engineered phenylalanine ammonia lyases from *Petroselinum crispum*. *Scientific Reports*, **2019**, *9*, 20123. (I. f. 4.38) doi: 10.1038/s41598-019-56554-0
23. Moisă, M. E., Amariei, D., Nagy, E. Z. A., Szarvas, N., Toşa, M. I., **Paizs, C.**, Bencze, L. C. Fluorescent enzyme-coupled activity assay for phenylalanine ammonia-lyases. *Scientific Reports*, **2020**, *10*, 18418. (I. f. 4.38) doi: 10.1038/s41598-020-75474-y
24. Ender, F., Weiser, D., Nagy, B., Bencze, L. C., **Paizs, C.**, Pálovics, P., Poppe, L. Microfluidic Multiple Cell Chip Reactor Filled with Enzyme-coated Magnetic Nanoparticles — An Efficient and Flexible Novel Tool for Enzyme Catalyzed Biotransformations. *Journal of Flow Chemistry*, **2016**, *6*, 43-52. (I. f. 3.622) doi: 10.1556/1846.2015.00036
25. Molnár, Z., Farkas, E., Lakó, A., Erdélyi, B., Kroutil, W., Vértessy, B. G., **Paizs, C.**, Poppe, L. Immobilized Whole-Cell Transaminase Biocatalysts for Continuous-Flow Kinetic Resolution of Amines. *Catalysts*, **2019**, *9*, 438. (I. f. 4.146) doi: 10.3390/catal9050438
26. Abaházi, E., Sátorhelyi, P., Erdélyi, B., Vértessy, B. G., Land, H., **Paizs, C.**, Berglund, P., Poppe, L. Covalently immobilized Trp60Cys mutant of  $\omega$ -transaminase from *Chromobacterium violaceum* for kinetic resolution of racemic amines in batch and continuous-flow modes. *Biochemical Engineering Journal*, **2018**, *132*, 270-278. (I. f. 3.978) doi.org/10.1016/j.bej.2018.01.022
27. Moisă, M. E., Poppe, L., Gal, C. A., Bencze, L. C., Irimie, F. D., **Paizs, C.**, Peter, F., Toşa, M. I. Click reaction-aided enzymatic kinetic resolution of secondary alcohols. *Reaction Chemistry and Engineering*, **2018**, *3*, 790-798. (I. f. 3.441) doi:10.1039/C8RE00091C
28. Bencze, L. C., Filip, A., Bánóczy, G., Toşa, M. I., Irimie, F. D., Gellért, Á., Poppe, L., **Paizs, C.**\* Expanding the substrate scope of phenylalanine ammonia-lyase from *Petroselinum crispum* towards styrylalanines. *Organic and Biomolecular Chemistry*, **2017**, *17*, 3717-3727. (I. f. 3.876) doi:10.1039/C7OB00562H
29. Leonte, D., Bencze, L. C., **Paizs, C.**, Irimie, F. D., Zaharia, V. (2015) Heterocycles 38. Biocatalytic synthesis of new heterocyclic mannich bases and derivatives. *Molecules*, **2015**, *20*, 12300-12313. (I. f. 4.412) doi: 10.3390/molecules200712300

30. Leonte, D., Bencze, L. C., **Paizs, C.**, Toşa, M. I., Zaharia, V., Irimie, F. D. (2016) Heterocycles 36. Single-Walled Carbon Nanotubes-Bound *N,N*-Diethyl Ethanolamine as Mild and Efficient Racemisation Agent in the Enzymatic DKR of 2-Arylthiazol-4-yl-alanines. *Molecules*, **2016**, 21, 25. (I. f. 4.412) doi: 10.3390/molecules21010025
31. Sánta-Bell, E.; Molnár, Z.; Varga, A.; Nagy, F.; Hornyánszky, G.; **Paizs, C.**; Balogh-Weiser, D.; Poppe, L. (2019) "Fishing and Hunting"-Selective Immobilization of a Recombinant Phenylalanine Ammonia-Lyase from Fermentation Media. *Molecules*, **2020**, 22, 4146. (I. f. 4.412) doi: 10.3390/molecules24224146
32. Spelmezan, C. G., Bencze, L. C., Katona, G., Irimie, F. D., **Paizs, C.**, Toşa, M. I. Efficient and stable magnetic chitosan-lipase B from *Candida antarctica* bioconjugates in the enzymatic kinetic resolution of racemic heteroarylethanol. *Molecules*, **2020**, 25, 350. (I. f. 4.412) doi: 10.3390/molecules25020350
33. Bartha-Vári, J., Moisă, M. E., Bencze, L. C., Irimie, F. D., **Paizs, C.**, Toşa, M. I. Efficient biodiesel production catalyzed by nanobioconjugate of lipase from *Pseudomonas fluorescens*. *Molecules*, **2020**, 25, 651. (I. f. 4.412) doi: 10.3390/molecules25030651
34. Varga, A., Bánoczi, G., Nagy, B., Bencze, L. C., Toşa, M. I., Gellért, Á., Irimie, F. D., Rétey, J., Poppe, L., **Paizs, C.\*** Influence of the aromatic moiety in  $\alpha$ - and  $\beta$ -arylalanines on their biotransformation with phenylalanine 2,3-aminomutase from *Pantoea agglomerans*. *RSC: Advances*, **2016**, 6, 56412-56420. (I. f. 3.361) doi:10.1039/C6RA02964G
35. Moisă, M. E., Spelmezan, C. G., Paul, C., Bartha-Vári, H. J., Bencze, L. C., Irimie, F. D., **Paizs, C.**, Péter, F., Toşa, M. I. Tailored sol-gel immobilized lipase prepartates for the enzymatic kinetic resolution of heteroaromatic alcohols in batch and continuous flow systems. *RSC: Advances*, **2017**, 7, 59277-59287. (I. f. 3.361) doi: 10.1039/C7RA10157K
36. Brem, J., Turcu, M.C., **Paizs, C.**, Lundell, K., Toşa, M.I., Irimie, F.D., Kanerva, L.T. Immobilization to improve the properties of *Pseudomonas fluorescens* lipase for the kinetic resolution of 3-aryl-3-hydroxy esters. *Process Biochemistry* **2012**, 47, 119-126. (I. f. 3.757) doi.org/10.1016/j.procbio.2011.10.020
37. **Paizs, C.**, Katona, A., Rétey, J. Chemoenzymatic One-Pot Synthesis of Enantio-Pure L-Arylalanines From Arylaldehydes. *European Journal of Organic Chemistry* **2006**, 1113-1116. (I. f. 3.021) doi.org/10.1002/ejoc.200500902
38. Barabás, L. E., Scrob, D. M., Varga, A., Kiss, L., Toşa, M. I., **Paizs, C.\*** Transaminase-carbonic anhydrase bi-enzymatic cascade for preparation of (*R*)-1-arylethan-1-amines and (*S*)-1-arylethan-1-ols. *Reaction Chemistry and Engineering*, **2023**, 8, 2001-2010. (I.f. 3.9)
39. Nagy, B., Galla, Z., Bencze, L. C., Toşa, M. I., **Paizs, C.**, Forró, E., Fülöp, F. Covalently Immobilized Lipases are Efficient Stereoselective Catalysts for the Kinetic Resolution of *rac*-(5-Phenylfuran-2-yl)- $\beta$ -alanine Ethyl Ester Hydrochlorides. *European Journal of Organic Chemistry*, **2017**, 20, 2878-2882. (I. f. 3.021) doi.org/10.1002/ejoc.201700174

40. Kovács, K., Bánoczi, G., Varga, A., Szabó, I., Holzinger, A., Hornyánszki, G., Zagyva, I., **Paizs, C.\***, Vértessy, B., Poppe, L. Expression and Properties of the Highly Alkalophilic Phenylalanine Ammonia-Lyase of Thermophilic *Rubrobacter xylanophilus*. *Plos One* **2014**, *9*, e85943. (I. f. 3.24) doi.org/10.1371/journal.pone.0085943
41. Czikó, M., Bogya, E. S., **Paizs, C.**, Katona, G., Konya, Z., Kukovecz, Á., Barabás, R. (2016) Albumin adsorption study onto hydroxyapatite-multiwall carbon nanotube based composites. *Materials Chemistry and Physics*, **180**, 314-325. (I.f. 4.094)
42. Weiser, D., Bencze, L. C., Bánoczi, G., Ender, F., Kiss, R., Kókai, E., Szilágyi, A., Vértessy, B. G., Farkas, Ö., **Paizs C.\***, Poppe, L. Phenylalanine ammonia-lyase catalyzed deamination of an acyclic amino acid - Enzyme mechanistic studies aided by a novel microreactor filled with magnetic nanoparticles. *ChemBioChem*, **2015**, *16*, 2283-2288. (I. f. 3.164) doi.org/10.1002/cbic.201500444
43. Csuka, P., Juhász, V., Kohári, S., Filip, A., Varga, A., Sátorhelyi, P., Bencze, L. C., Barton, H., **Paizs C.\***, Poppe, L. *Pseudomonas fluorescens* Strain R124 Encodes Three Different MIO Enzymes. *ChemBioChem*, **2018**, *19*, 411-418. (I. f. 3.164) doi: 10.1002/cbic.201700530
44. **Paizs, C.**, Toşa, M. I., Majdik, C., Bódai, V., Novák, L., Irimie, F. D., Poppe, L. Chemo-enzymatic preparation of hydroxymethyl ketones. *Journal of the Chemical Society, Perkin Transactions 1* **2001**, *21*, 2000-2002. (I. f. 3.876) doi:10.1039/B206851F
45. **Paizs, C.**, Tähtinen, P., Toşa, M. I., Majdik, C., Irimie, F. D., Kanerva, L. T. Biocatalytic enantioselective preparation of phenothiazine-based cyanohydrin acetates: kinetic and dynamic kinetic resolution. *Tetrahedron* **2004**, *60*, 10533-10540. (I. f. 2.233) doi.org/10.1016/j.tet.2004.06.13
46. Brem, J., Naghi, M., Toşa, M. I., Boros, Z., Poppe, L., Irimie, F. D., **Paizs, C.\*** Lipase mediated sequential resolution of aromatic  $\beta$ -hydroxy esters using fatty acid derivatives. *Tetrahedron: Asymmetry* **2011**, *22*, 1672-1679. (I. f. 2.126) doi.org/10.1016/j.tetasy.2011.09.005
47. Boros, K., Moisă, M. E., Nagy, L. C., **Paizs, C.**, Toşa, M. I., Bencze, L. C. (2021) Robust, site-specifically immobilized phenylalanine ammonia-lyases for the enantioselective ammonia addition of cinnamic acids. *Catalysis Science & Technology*, **11**, 5553-5563. (I. f. 6.119)
48. Gal, C. A., Barabás, L. E., Bartha Vári, J. H., Moisă, M. E., Balogh-Weiser, D., Bencze, L. C., Poppe, L., **Paizs, C.**, Toşa, M. I. (2021) Lipase on carbon nanotubes-an active, selective, stable and easy-to-optimize nanobiocatalyst for kinetic resolutions. *Reaction Chemistry and Engineering*, **6**, 2391 – 2399. (I. f. 4.239)
49. Nagy, F., Sánta-Bell, E., Jipa, M., Hornyánszky, G., Szilágyi, A., László, K., Katona, G., **Paizs, C.**, Poppe, L., Balogh-Weiser, D. (2022) Cross-Linked Enzyme-Adhered Nanoparticles (CLEANs) for Continuous-Flow Bioproduction. *ChemSusChem*, **15**, e2021022. (I. f. 8.928)

50. Dudu, A. I., Bencze, L. C., Paizs, C., Toşa, M. I. (2022) Deep eutectic solvents-a new additive in the encapsulation of lipase B from: *Candida antarctica*: Biocatalytic applications. Reaction Chemistry and Engineering, *7*, 442 – 449. (I. f. 4.239)

Tabelul 1.

Nr lucrare anexa 1	Punctaje				observatii
	FIC 100	FIC <sub>D</sub> 70	FIC <sub>AP</sub> 50	FIC <sub>AC</sub> 25	
1	13.084	13.084	13.084	13.084	
2	13.084	13.084	13.084	13.084	
3	8.198	8.198			
4	8.198	8.198			
5	8.198	8.198	8.198	8.198	
6	8.198	8.198			
7	9.642	9.642			
8	8.001	8.001			
9	6.001	6.001			
10	5.851	5.851			
11	6.766	6.766	6.766	6.766	
12	4.857	4.857	4.857		
13	4.857	4.857	4.857		
14	5.686	5.686			
15	5.686	5.686	5.686	5.686	
16	5.686	5.686			
17	5.686	5.686	5.686	5.686	
18	5.686	5.686	5.686	5.686	
19	5.275	5.275	5.275		
20	5.076	5.076			
21	4.38	4.38			
22	4.38	4.38			
23	4.38	4.38			
24	3.622	3.622			
25	4.146	4.146			
26	3.978	3.978			
27	3.441	3.441			
28	3.876	3.876	3.876	3.876	
29	4.412	4.412			

30	4.412	4.412			
31	4.412	4.412			
32	4.412	4.412			
33	4.412	4.412			
34	3.361	3.361	3.361	3.361	
35	3.361	3.361			
36	3.757	3.757			
37	3.021	3.021	3.021		
38	3.9	3.9	3.9	3.9	
39	3.021	3.021			
40	3.24	3.24	3.24	3.24	
41	4.094	4.094			
42	3.164	3.164	3.164	3.164	
43	3.164	3.164	3.164	3.164	
44	3.876	3.876	3.876		
45	2.233	2.233	2.233		
46	2.126	2.126	2.126		
47	6.119	6.119			
48	4.239	4.239			
49	8.928	8.928			
50	4.239	4.239			
<b>TOTAL</b>	<b>263.882</b>	<b>263.882</b>	<b>102.119</b>	<b>75.874</b>	
<b>Grad de îndeplinire Da/Nu</b>	<b>DA</b>	<b>DA</b>	<b>DA</b>	<b>DA</b>	

**Tabelul 2**

<b>h indexul realizat</b>	29	26	32
<b>Sursa</b>	Scopus	Web of Science	Google Scholar
<b>Barem h index</b>	13		
<b>Grad de indeplinire Da/Nu</b>	Da		

Cluj-Napoca,  
23.01.2026

**Prof. Dr. Paizs Csaba**

