

CURRICULUM VITAE

Name: Barbara Pem

Date of Birth: January 29th 1994

Birthplace: Zagreb, Croatia

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Education/Titles/Qualifications:

- Ph.D. degree in Pharmaceutical and Biochemical Sciences, Faculty of Pharmacy and Biochemistry, University of Zagreb, Croatia, 2021
- Master of Pharmacy, Faculty of Pharmacy and Biochemistry, University of Zagreb, Croatia, 2017

Professional Experience:

- Postdoctoral researcher, Department of Organic Chemistry and Biochemistry, Ruđer Bošković Institute, Croatia, 2022-present
- Research Assistant, Analytical Toxicology and Mineral Metabolism Unit, Institute for Medical Research and Occupational Health, 2017-2022

Major Fields of Scientific Research:

- Phospholipid membranes, liposomes, metallic nanoparticles; computational chemistry (quantum chemistry, molecular dynamics); physico-chemical characterization of nanoparticles; interaction of nanoparticles with small biomolecules

Membership in Scientific and/or Professional Institutions, Bodies, and Organizations:

- Croatian Chamber of Pharmacists, Croatian Society of Biochemistry and Molecular Biology, Croatian Chemical Society

Awards/Honors:

- Research scholarship, British Scholarship Trust, 3-month research stay, 2019
- Short-term scholarship, Federation of European Biochemical Societies, 2-month research stay, 2018
- Rector's Award for Individual Scientific Work, Faculty of Pharmacy and Biochemistry, 2017

International research stays:

- Visiting researcher at Leibniz Institute of Photonic Technology, Jena, Germany (Host: Wolfgang Frietzche, Ph.D.), Nov 2019
- Visiting researcher at Institute for Occupational Medicine, Edinburgh, UK (Host: Lang Tran, Ph.D.), Apr-Jun 2019

- Visiting researcher at University of the West of England, Bristol, UK (Host: Andrew Adamatzky, Ph.D.), Feb-Mar 2019

- Visiting researcher at Leibniz Institute for Chemistry, University of Graz, Austria (Host: Klaus Zangger, Ph.D.), Sep-Oct 2018

Languages:

Croatian (mother tongue), English (fluent), Italian (basic)

Publications

1. L. Pašalić, B. Pem, D. Bakarić. Lamellarity-Driven Differences in Surface Structural Features of DPPS Lipids: Spectroscopic, Calorimetric and Computational Study. *Membranes*, **13**, 83, 22 (2023).
2. N. Cheimarios, B. Pem, A. Tsoumanis, K. Ilić, I. Vinković Vrček, G. Melagraki, D. Bitounis, P. Isigonis, M. Dusinska, I. Lynch et al. An In Vitro Dosimetry Tool for the Numerical Transport Modeling of Engineered Nanomaterials Powered by the Enalos RiskGONE Cloud Platform. *Nanomaterials*, **12**, 22; 3935, 15 (2022).
3. P. Maleš, B. Pem, D. Petrov, D. Domazet Jurašin, D. Bakarić. Deciphering the origin of the melting profile of unilamellar phosphatidylcholine liposomes by measuring the turbidity of its suspensions. *Soft Matter*, **18**, 6703-6715 (2022).
4. Ž. Debeljak, I. Vinković Vrček, N. Drinković, V. Micek, E. Galić, D. Gorup, M. Ćurlin, D. Mandić, A. Bandjak, B. Pem et al. Imaging mass spectrometry differentiates the effects of doxorubicin formulations on non-targeted tissues. *Analyst*, **147**, 3201-3208 (2022).
5. B. Pem, M. Ćurlin, D. Domazet Jurašin, V. Vrček, R. Barbir, V. Micek, R. Fratila, J.M. de la Fuente, I. Vinković Vrček. Fate and transformation of silver nanoparticles in different biological conditions. *Beilstein Journal of Nanotechnology* **12**, 665-679 (2021).
6. B. Tariba Lovaković, R. Barbir, B. Pem, W. Goessler, M. Ćurlin, V. Micek, Ž. Debeljak, L. Božičević, K. Ilić, I. Pavičić et al. Sex-related response in mice after sub-acute intraperitoneal exposure to silver nanoparticles. *NanoImpact*, **23**, 100340, 13 (2021).
7. I. Erceg, A. Selmani, A. Gajović, B. Radatović, S. Šegota, Ć. Marija, V. Strasser, J. Kontrec, D. Kralj, N. Maltar-Strmečki et al. Precipitation at Room Temperature as a Fast and Versatile Method for Calcium Phosphate/TiO₂ Nanocomposites Synthesis. *Nanomaterials*, **11**, 6; 1523, 23 (2021).
8. S. Murugadoss, I. Vinković Vrček, B. Pem, K. Jagiello, B. Judzinska, A. Sosnowska, M. Martens, E.L. Willighagen, T. Puzyn, M. Dusinska et al. A strategy towards the generation of testable adverse outcome pathways for nanomaterials. *ALTEX*, **38**, 4; 580-594 (2021).
9. S. Opačak, D. Babić, B. Perić, Ž. Marinić, V. Smrečki, B. Pem, I. Vinković Vrček, S. Kirin. A ferrocene-based pseudopeptide chiroptical switch. *Dalton Transactions*, **13**, 4504-4511 (2021).
10. B. Pem, M. Toma, V. Vrček, I. Vinković Vrček. Combined NMR and Computational Study of Cysteine Oxidation during Nucleation of Metallic Clusters in Biological Systems. *Inorganic Chemistry* **60**, 4144-4161 (2021).

11. K. Ilić, S. Hartl, E. Galić, C. Tetyczka, B. Pem, R. Barbir, M. Milić, I. Vinković Vrček, E. Roblegg, I. Pavičić. Interaction of differently coated silver nanoparticles with skin and oral mucosal cells. *Journal of Pharmaceutical Sciences*, **110**, 5; 2250-2261 (2021).
12. R. Barbir, B. Pem, N. Kalčec, S. Kastner, K. Podlesnaia, A. Csáki, W. Fritzsche, I. Vinković Vrček. Application of Localized Surface Plasmon Resonance Spectroscopy to Investigate a Nano–Bio Interface. *Langmuir*, **37**, 1991-2000 (2021).
13. M. Milić, B. Vuković, R. Barbir, B. Pem, M. Milić, V. Šerić, E. Fröhlich, I. Vinković Vrček. Effect of differently coated silver nanoparticles on hemostasis. *Platelets*, **32**, 5; 651-661 (2021).
14. E. Galić, K. Ilić, S. Hartl, C. Tetyczka, K. Kasemets, I. Kurvet, M. Mirta, R. Barbir, B. Pem, I. Erceg et al. Impact of surface functionalization on the toxicity and antimicrobial effects of selenium nanoparticles considering different routes of entry. *Food and Chemical Toxicology*, **144**, 111621, 11 (2020).
15. A. Selmani, L. Ulm, K. Kasemets, I. Kurvet, I. Erceg, R. Barbir, B. Pem, P. Santini, I. Delač Marion, T. Vinković et al. Stability and toxicity of differently coated selenium nanoparticles under model environmental exposure settings. *Chemosphere*, **250**, 126265 (2020).
16. K. Vrandečić, J. Ćosić, J. Ilić, B. Ravnjak, A. Selmani, E. Galić, B. Pem, R. Barbir, I. Vinković Vrček, T. Vinković. Antifungal activities of silver and selenium nanoparticles stabilized with different surface coating agents. *Pest Management Science*, **76**, 6; 2021-2029 (2020).
17. B. Pem, I. Pongrac, L. Ulm, I. Pavičić, V. Vrček, D. Domazet Jurašin, M. Ljubojević, A. Krivohlavek, I. Vinković Vrček. Toxicity and safety study of silver and gold nanoparticles functionalized with cysteine and glutathione. *Beilstein Journal of Nanotechnology*, **10**, 1802-1817 (2019).
18. M. Muna, I. Blinova, A. Kahru, I. Vinković Vrček, B. Pem, K. Orupõld, M. Heinlaan. Combined Effects of Test Media and Dietary Algae on the Toxicity of CuO and ZnO Nanoparticles to Freshwater Microcrustaceans *Daphnia magna* and *Heterocypris incongruens*: Food for Thought. *Nanomaterials*, **9**, 1, 23-36 (2019).
19. B. Pem, D. González-Mancebo, M. Moros, M. Ocana, A. I. Becerro, I. Pavičić, A. Selmani, M. Babič, D. Horak, I. Vinković Vrček. Biocompatibility assessment of up- and down-converting nanoparticles: implications of interferences with in vitro assays. *Methods and Applications in Fluorescence*, **7**, 014001 (2019).
20. B. Pem, V. Vrček. Substituent effects on the stability of 1, 4-benzodiazepin-2-one tautomers. A density functional study. *International Journal of Quantum Chemistry*, **118**, 8; e25523 (2018).