CURRICULUM VITAE

Martyna Kapica
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EDUCATION AND DEGREES

2024-present- Doctoral School of Natural Sciences, University of Gdańsk, Poland. PhD candidate in chemical sciences.

Tentative PhD thesis title: “Characterization of the physicochemical properties of cationic lipopeptides and their affinity toward small-molecule compounds: experimental and theoretical studies”. Expected completion: 2028.

2022-2024- M.Sc. studies in Chemistry, Faculty of Chemistry, University of Gdańsk, Poland.

2019-2022- B.Sc. studies in Chemistry, Faculty of Chemistry, University of Gdańsk, Poland.

CONFERENCES

2026- *Electrostatically-Driven Assembly of Cationic Lipopeptides with Hexacyanoferrate Anions: A Thermodynamic and In Silico Study*, First Conference of the Italian Bioinorganic Chemistry Group (ItaBIC26), Naples, Italy.

2026- *Characterization of Cyclodextrin Inclusion Complexes*, XXII National Seminar of PhD Students and Young Scientists “At the Border of Chemistry, Biology and Pharmacy”, Wągrowiec, Poland.

2025- *Characterization of Interactions between Lipopeptides and Polyoxovanadate(V) Ions*, XXI National Seminar of PhD Students and Young Scientists “At the Border of Chemistry, Biology and Pharmacy”, Nałęczów, Poland.

2025- *Thermodynamics, Molecular Dynamics, and Putative Entrance Mechanisms of 1-Alkylsulfonates, Alkyl Sulfates and Lipopeptides into the Cyclodextrin Cavity*, 8th European Cyclodextrin Conference, Milan, Italy.

2025- *Binding Affinity and Putative Entrance Mechanisms of Octanoylated, Laurylated and Myristoylated KR12 Peptides into α-, β- and γ-Cyclodextrin Cavities*, 22nd European Carbohydrate Symposium, Gdańsk, Poland.

LIST OF PUBLICATIONS

1. Grabowska O., Zdrowowicz M., Milaş D., Żamojć K., Chmur K., Tesmar A., **Kapica M.**, Chmurzyński L., Wyrzykowski D. Implications of albumin in cell culture media on the biological action of vanadates(V). *Int. J. Biol. Macromol.* 2023. Vol. 253, Part 5, 127875.

2. **Kapica M.**, Kamysz E., Grabowska O., Tesmar A., Pająk M., Chmur K., Brzeski J., Samsonov S.A., Wyrzykowski D. Interactions of Laurylated and Myristoylated KR12 Fragment of the LL37 Peptide with Polyoxidovanadates. *Molecules* 2025. Vol. 30, No. 7, 1589.

3. **Kapica M.**, Grabowska O., Kamysz E., Kamysz J., Samsonov S., Wyrzykowski D. Cyclodextrin and KR12-Lipopeptide Interactions: A Thermodynamic View of Binding Mechanisms and Impact on the Structure of α-Helical Peptides. *J. Phys. Chem. B* 2025. Vol. 129, No. 41, 10149-10163.

4. **Kapica M.**, Grabowska O., Kamysz E., Samsonov S.A., Wyrzykowski D. Electrostatically-Driven Assembly of Cationic Lipopeptides with Hexacyanoferrate Anions: A Thermodynamic and In Silico Study. *Phys. Chem. Chem. Phys*. 2026. Vol. 28, No. 24, 14479-14487.

5. **Kapica M.**, Grabowska O., Dębowski D., Marszałek M., Tesmar A., Kamysz E., Wyrzykowski D., Samsonov S.A. Physicochemical Insights into the Interaction of Cationic Peptides (KR12 and TAT(47–57)) with Decavanadate: An Integrated ITC and Molecular Dynamics Study. *Phys. Chem. Chem. Phys.* 2026. Vol. 28, No. 15, 9382-9391.

6. Grabowska O., **Kapica M.**, Kloska A., Żamojć K., Tesmar A., Zdrowowicz M., Samsonov S.A., Wyrzykowski D. Thermodynamics, Structure, and Antibacterial Activity of the Decavanadate-Lysozyme Complex. *J. Inorg. Biochem*. 2026. Vol. 283, 113383.

7. **Kapica M.**, Helbik-Maciejewska A., Gitlin-Domagalska A., Samsonov S.A., Wyrzykowski D., Dębowski D. Moderate Cyclisation Favours Binding of SFTI-1-Based Furin Inhibitors to Human Serum Albumin: Thermodynamic and Computational Studies. *J. Pept. Sci.* In review.