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Tymofii Sokolskyi

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Education

PhD, Special Committee Degree *Astrobiology & Evolution*. 2021-
University of Wisconsin-Madison, Department of Biology & Wisconsin Institute for Discovery; WI, USA. Advisor: David Baum. (expected 05/2027)

BS, *Biology* (Evolutionary biology concentration), Philosophy minor, with Honors. 2017-2021
Duke University, Trinity College of Arts & Sciences; NC, USA.

BS, *Plant Biology.* 2016-2020
Taras Shevchenko Kyiv National University, Institute of Biology; Kyiv, Ukraine.

Fellowships, Grants & Awards

Biophysical Society Travel Award, Biophysical Society Annual Meeting 2027. 2026
Type: Travel award. Sum: 550$.

John Jefferson Davis Award, Department of Biology, UW-Madison. 2026
Type: Travel award. Sum: 900$.

NASA FINESST (Future Investigators in NASA Earth and Space Science and Technology). 2024-2026
Type: Fellowship. Sum: 80,000$. Proposal title: *Can lipid vesicles evolve?*

Demeter Award, Department of Botany, UW-Madison. 2025-2026
Type: Research award. Sum: 2,500$.

Tulipa et Paeonia Award, Department of Botany, UW-Madison. 2023-2025
Type: Research & travel award. Sum: 4,000$ (2023-24); 5,000$ (2024-25).

Rosemary Grant Advanced Award, Society for the Study of Evolution. 2024
Type: Research award. Sum: 3,500$. Proposal title: *Can lipid vesicles show evolution-like dynamics?*

AbGradCon Travel Award, Astrobiology Graduate Conference 2023. 2023
Type: Travel award.

WID100 Travel Award, Wisconsin Institute for Discovery, UW-Madison. 2022
Type: Travel award. Sum: 1,000$.

Davis Research Assistantship & Award, Department of Botany, UW-Madison. 2022-2023
Type: Assistantship, research & travel award. Sum: 5,000$.
Proposal title: *Evolution of compartmentalization and dynamics of compartmentalized prebiotic chemistry.*

The Karsh International Scholarship, Duke University. 2017-2021
Type: Scholarship.

Undergraduate Research Independent Study Grant, Duke University. 2018, 2020
Type: Research award.

II place diploma, International Biology Universiade, Moscow State University. 2016
Type: Olympiad.

Bronze medal, International Biology Olympiad, Hanoi, Vietnam. 2016
Type: Olympiad.

Academic positions & Professional Development

Wisconsin Center for Origins Research STAR Bootcamp, UW-Madison. 2025

International Winter School on Origins of Life, University of Pavia, Italy. 2023

Cooperative Institute for Dynamic Earth Research summer program: *Earth's evolution as an inhabited world*, University of California-Berkeley. 2022

2021 Young Scientist Program, Blue Marble Space Institute of Science.	2021
Research Assistant in the Meyer lab, Nicholas School of Environment, Duke University.	2018-2021
Turkana Basin Institute Field School semester program, Stony Brook University, Kenya.	2019
Visiting researcher, Institut des Sciences de l'Evolution de Montpellier, France.	2018
Research Assistant in the Vilgalys lab, Department of Biology, Duke University.	2017-2018
Research Assistant in the Filonenko lab, Cell Signaling Department, Institute of Molecular Biology and Genetics of National Academy of Science of Ukraine (NASU).	2016-2017

Teaching, Service & Outreach

Teaching Assistant for Introductory Biology (BIO151) class, UW-Madison.	2026
Member of the Local Organizing Committee for AbSciCon 2026, Madison, WI.	2025-2026
Exhibitor at the Wisconsin Science Festival. Title: "How do we read the tree of life?"	2024-2026
Convener for a scientific session at AbSciCon 2026. Title: "Multilevel selection and the Evolution of Cooperation".	2026
Graduate committee member, Department of Botany, UW-Madison.	2023-2025
Course development for Introductory Biology (BIO152), hourly position, UW-Madison.	2024
Primary convener for a scientific session at AbSciCon 2024. Title: "Evolution before life: a multifaceted concept with countless interpretations".	2024
Research Mentor Training, Delta program, UW-Madison.	2023
Teaching Assistant for Introductory Biology (BIO152) class, UW-Madison.	2022, 2024
Teaching Assistant for General Botany (BOT130) class, UW-Madison.	2021
Head Editor for Duke Vertices undergraduate publication, Duke University.	2020-2021
Task author and jury member, All-Ukrainian Biological Tournaments.	2016-2017

Mentoring of UW-Madison students: Lukas Neo-Vajyimleej Lee (BS, 2025-26), Naz Michel (BS, 2025-26), Walid Lakdari (BS, 2024-25), Sydney Gargulak (BS, 2023-25), Justin Yang (BS, 2022-23), Ronan Montgomery-Taylor (BS, 2022-24), Camille Evin (MS, 2023), Keeley Kuru (BS, 2022-23), Esau Allen (BS, 2022-23), Brenna Fricke (BS, 2021-22).

Research presentations

Origin of Life Early Career Network Seminar. Title: "Heritability & evolution in prebiotic chemical systems".	2024
Wisconsin Institute for Discovery Seminar Series. Title: "Heritability in prebiotic chemical systems".	2024
Research seminar, UCT Prague, Czechia. Title: "Evolutionary dynamics in prebiotic chemical systems".	2024
Astrobiology Science Conference. Title: "Non-linear dynamics in prebiotic combinatorial explosions".	2024
Evolution Seminar Series at UW-Madison. Title: "In-vitro search for evolution-like dynamics in chemical systems".	2023
Astrobiology Science Conference. Title: "Origins of the modern reductive tricarboxylic acid cycle in the evolution of life".	2022
11th Annual Plant Sciences Symposium by Plant Sciences Graduate Students Council, UW-Madison. Title: "Evolution of vaults – enigmatic ribonucleoprotein organelles".	2021
National Institute for Environmental Health Sciences (NIEHS) workshop. Title: "The response of nematode gut microbiome to Aflatoxin B1".	2021
Research seminar, Vilnius university, Lithuania. Title: "Sharks in the fossil record: surviving mass extinctions for 400 million years".	2019
Geological Society of America Annual Meeting. Title: "Elasmobranch (Chondrichthyes: Elasmobranchii) faunal complex from Late Albian of Kaniv dislocations, Ukraine".	2018

Selected publications & preprints

Baum, D. A., **Sokolskyi, T.,** Kalambokidis, M., Peng, Z. & Deans-Rowe, A. (2026). The case for evolutionary chemistry: A review and conceptual analysis of "chemical evolution." *Journal of Royal Society Interface [in review]*

Sokolskyi, T. & Baum, D. A. (2026). Prebiotically plausible vesicle populations can respond to selection for greater turbidity via emergent cooperative dynamics. *Langmuir, 42(25), 17787–17795.*

Cuevas-Zuviria, B. & **Sokolskyi, T.** (2024). Rule-it: an online platform for reaction network explorations for chemical evolution. *chemrxiv*

Sokolskyi, T., Cuevas-Zuviria, B., Gargulak, S., Allen, E. & Baum, D. A. (2024). From messy chemistry to ecology: autocatalysis and heritability in prebiotically plausible chemical systems. *bioRxiv*

Sokolskyi, T., Ganju, P., Montgomery, R. & Baum, D. (2024) Searching for heritability in prebiotically realistic membrane-bound systems. *Life, 14(3), 284.*

Sokolskyi, T. (2023) First occurrence of pterosaurs in Ukraine from the Albian (Lower Cretaceous) of Burim Formation, Kaniv Natural Reserve. *Journal of Vertebrate Paleontology, e2238000.*

Sokolskyi, T., & DasSarma, S. (2023) Role of horizontal gene transfers and microbial ecology in the evolution of fluxes through the reductive tricarboxylic acid cycle. *International Journal of Astrobiology, 22(4), 399-413.*

Leuthner, T., Benzing, L. C., Kohrn, B., Bergemann, C., Hipp, M., Hershberger, K., Mello, D. F., **Sokolskyi, T.**, Stevenson, K., Merutka, I. R., Seay, S., Gregory, S., Kennedy, S. & Meyer, J. (2022) Resistance of mitochondrial DNA to cadmium and aflatoxin B1 damage-induced germline mutation accumulation in *C. elegans*. *Nucleic Acids Research, gkac666.*

Sokolskyi, T., & Guinot, G. (2021). Elasmobranch (Chondrichthyes) assemblages from the Albian (Lower Cretaceous) of Ukraine. *Cretaceous Research, 117, 104603.*

Sokolskyi, T. (2019). Bacterial Major Vault Protein homologs shed new light on origins of the enigmatic organelle. *bioRxiv*

Popova, L., Ogienko, O. & **Sokolskiy, T.** (2015). Fossil Elasmobranchs and Stratigraphy of Cretaceous Deposits, Kaniv. *Visnyk Taras Schevchenko National University of Kyiv, 1(68), 10-14.*

Selected conference abstracts

Sokolskyi, T. & Baum, D. A. (2027). Non-random assortment of prebiotically-plausible amphiphiles among vesicle subpopulations. *Biophysical Society Annual Meeting 2027.*

Sokolskyi, T. & Baum, D. A. (2026). Prebiotically Plausible Vesicle Populations Can Respond to Selection for Greater Turbidity Via Emergent Cooperative Dynamics. *International Society for the Study of Origins of Life meeting 2026.*

Baum, D. A, **Sokolskyi, T.** & Kalambokidis, M. (2026). Chemical evolution and evolutionary chemistry: Where have we been and where are we going. *Astrobiology Science Conference 2026.*

Sokolskyi, T. & Baum, D. A. (2026). Simple case of prebiotic evolution: vesicle populations can respond to selection for greater turbidity via emergent cooperative dynamics. *Astrobiology Science Conference 2026.*

Sokolskyi, T., & Baum, D. (2024). Evolution before life: response to selection in lipid vesicles. *3rd Joint Congress on Evolutionary Biology 2024.*

Sokolskyi, T., Vincent, L., Evin, C., Ganju, P., Allen, E., Kuru, K., Montgomery-Taylor, R., Yang, J. & Baum, D. (2023). From autocatalysis to evolution: experimental demonstration of chemical memory in autocatalytic systems. *International Society for the Study of Origins of Life meeting 2023.*

Sokolskyi, T., Ganju, P., Kuru, K., Allen, E., Montgomery-Taylor, R., Vincent, L. & Baum, D. (2023). Experimental framework for detection of seed-dependent autocatalysis in prebiotically-plausible chemical systems. *Astrobiology Graduate Conference 2023.*

Sokolskyi, T., Ganju, P. & Baum, D. (2023). Using recursive seeding to detect stable attractors for the matrix effect in vesicles in a prebiotically-plausible chemical system. *Biophysical Journal, 122(3), 362a.*

Yang, J., **Sokolskyi, T.**, Vincent, L., Kuru, K., Montgomery-Taylor, R., Sankari, T., Manos, S. & Baum, D. (2022). Analysis of untargeted tandem liquid chromatography-mass spectrometry data for understanding origins of life. *Life and Space 2022.*

Sokolskyi, T., Leuthner, L. & Meyer, J. (2020). Impact of Aflatoxin B1 on *C. elegans* gut microbiome and host resistance. *Society of Environmental Toxicology and Chemistry North America 41st Annual Meeting (2020).*

Sokolskyi, T., Zanno, L., & Kosch, J. C. (2019). Unusual tooth replacement in a new Cenomanian iguanodontian from the Mussentuchit Member of the Cedar Mountain Formation. *Journal of Vertebrate Paleontology, Program and Abstracts, 195-196.*