

## **Unit Name**

Protein Engineering and Evolution Unit  
Professor Paola Laurino

## **Research Personnel**

Petr Skvara, Postdoctoral Scholar  
Dan Kehila, Postdoctoral Scholar  
Margaux Aubel, Postdoctoral Scholar  
Yi Tan, Postdoctoral Scholar  
Elsie Dunkley, Postdoctoral Scholar  
Prashant Jain, Postdoctoral Scholar  
Paul Matthay, Walter Benjamin Fellowship  
Yusran Abdillah Muthahari, Postdoctoral Scholar  
Gen-ichiro Uechi, Research Unit Technician  
Benjamin Clifton, Visiting Researcher  
Karolina Honzejkova, JSPS Research Fellow  
Margaux Aubel, JSPS Research Fellow  
Elsie Dunkley, JSPS Research Fellow  
Dan Kozome, Research Fellow  
Alessandro Bevilacqua, PhD Student  
Amy Stanton Gooch, PhD Student  
Milena Dobronos, PhD Student  
Yoshiki Ochiai, PhD Student  
Erika Fukuhara, PhD Student  
Iana Zavarzina, PhD Student  
Lilian Magnus, PhD Student  
Maria Patricia Gorenflo, Special Research Student  
Yovin Sugijo, Research Intern  
Dongkyu Lee, Research Intern  
Niranjana Krishna Palliyalil Ramesh, Research Intern  
Cara Sophie Jaeckel, Research Intern

## Scholarly Contributions and Creative Productions (by Faculty)

### Journal Article

1. Fukuhara, E.; Dunkley, E.; Bevilacqua, A.; Laurino, P.  
Dynamic Cytoplasm: A Physical Regulator of Enzymatic Function. *Biochemistry* 2025, 64, 2699.
2. Muthahari, Y. A.; Magnus, L.; Laurino, P.  
From Duplication to Fusion: Expanding Dayhoff's Model of Protein Evolution. *Protein Science* 2025, 34, e70054.
3. Dindo, M.\*; Conter, C.; **Uechi, G.**; Pampalona, G.; Ruta, L.; Pey, A. L.; Rossi, L.; **Laurino, P.**; Magnani, M.; Cellini, B.\* Engineered Oxalate decarboxylase boosts activity and stability for biological applications. *ACS Omega* 2025, 10, 12375-12384  
<https://pmc.ncbi.nlm.nih.gov/articles/PMC11966277/>
4. Demkiv, A. O., **Toledo-Patiño, S.**; Medina Carmona, E.; Berg, A.; Pinto, G. P.; Parracino, A.; Sanchez-Ruiz, J. M.; Hengge, A. C.; **Laurino, P.**; Longo, L. M. \* and Kamerlin, S. C. L.\* Redefining the Limits of Functional Continuity in the Early Evolution of P-Loop NTPases. *Molecular Biology and Evolution* 2025 42, 1-12 <https://academic.oup.com/mbe/advance-article/doi/10.1093/molbev/msaf055/8071345>

### Presentation at Conference

1. Laurino, P.  
How Do Proteins Expand Functionality? Michael Sar Symposium 2025.
2. Laurino, P.  
How Do Proteins Expand Functionality? Chemical Biology Seminar 2025.
3. Laurino, P.  
How Do Proteins Expand Functionality? GRC Molecular Mechanism in Evolution 2025.
4. Laurino, P.  
How Do Proteins Expand Functionality? Plenary Lecture at the Institute for Protein Research International Conference 2025.
5. Laurino, P.  
How Do Proteins Expand Functionality? Protein Science and Engineering in the New Era 2025.

### Seminars

1. Laurino, P.  
How Do Proteins Expand Functionality? 2025.
2. Laurino, P.  
How Do Proteins Switch Functionality? Diving into SAM Binding Proteins. 2025.

## Scholarly Contributions (by Unit Members)

Name of Unit Member	Type	Title	Outlet	Publisher	Year Pub
Dan Kehila	Journal Article	Stability of multi-species consortia during microbial metabolic evolution	Evolution	Oxford Academic	2025
Paul Matthay	Other Scholarly Work	Pitch: Unlocking microbial PFAS-degradation with evolutionary approaches	OIST POC showcase	OIST	2025
Dan Kozome	Poster Presentation at Conference	Protein Evolution and Engineering through remote loop regions	Japan Society for Bioscience, Biotechnology, and Agrochemistry		2025

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Dan Kozome	Poster Presentation at Conference	Protein Evolution and Engineering through remote loop regions	IPR International Conference		2025

### **Honors, Awards & Fellowships**

Term 3 2025 - Term 3 2025	Falling Walls Life Sciences Finalist (Top 10 Global), 2025, Falling Walls Foundation [Fiscal Year: 2025-07-17]
Term 2 2025 - Term 2 2025	Frontiers Planet Prize, National Champion of Japan, 2025, Frontiers Research Foundation [Fiscal Year: 2025-04-22]
Term 1 2024 - Ongoing	Dr Karolina Honzejkova, Japan Society for the Promotion of Science (JSPS) postdoctoral fellowship # P24746, Dr Karolina Honzejkova, Japan Society for the Promotion of Science (JSPS) postdoctoral fellowship # P24746, 2024 [Fiscal Year: 2024]
Term 2 2024 - Term 2 2026	Dr. Dan Kozome, Japan Society for the Promotion of Science (JSPS), doctoral fellowship DC2, Dr. Dan Kozome, Japan Society for the Promotion of Science (JSPS), doctoral fellowship DC2, 2024 [Fiscal Year: 2026-03-02]
Term 3 2023 - Ongoing	Featured in ChemBioTalent, 2023, ChemBioTalent
Term 2 2023 - Ongoing	Dr Elsie Dunkley, Japan Society for the Promotion of Science (JSPS) postdoctoral fellowship #P23754, Dr Elsie Dunkley, Japan Society for the Promotion of Science (JSPS) postdoctoral fellowship #P23754, 2023 [Fiscal Year: 2024]

### **Honors, Awards & Fellowships [By Unit Members Only]**

Term 2 2025 - Term 2 2025	Yoshiki Ochiai, Travel Award, BPS2025 travel award for Graduate students, 2024, Biophysical Society, N/A [Fiscal Year: 2024]
Term 1 2024 - Ongoing	Karolina Honzejkova, JSPS Postdoctoral Fellowships for Research in Japan (Standard), JSPS Postdoctoral Fellowships for Research in Japan (Standard), 2024, JSPS, N/A [Fiscal Year: 2024]
Term 3 2024 - Ongoing	Paul Matthey, Fellowship, Benjamin Walther Stipendium, 2024, Deutsche Forschungsgemeinschaft, N/A [Fiscal Year: 2024]
Term 3 2024 - Term 3 2035	Yoshiki Ochiai, Poster Prize, 優秀ポスター発表賞, 2024, The 64th Biophysics Summer School for Young Scientists in Japan, N/A [Fiscal Year: 2024]
Term 2 2024 - Ongoing	Dan Kozome, Fellowship, 特別研究員奨励金, 2024, JSPS, N/A [Fiscal Year: 2024]

### **External Service**

2025 - Ongoing	Editorial Board Member, Current Opinion in Chemical Biology
Term 2 2026	Ad hoc Reviewer, Science Advances
Term 3 2025 – Term 1 2025	Ad hoc Reviewer, Protein Science
Term 1 2025	Ad hoc Reviewer, Journal of Molecular Biology
Term 1 2025	Ad hoc Reviewer, Nature Chemistry
Term 2 2026	Grant Reviewer, United States–Israel Binational Science Foundation
Term3 2025	Grant Reviewer, Swiss National Science Foundation (SNSF)
Term 2 2025 - Ongoing	Member of Editorial Advisory Board of ACS Biochemistry, ACS Biochemistry [Fiscal Year: 2024]

Term 1 2024 - Term 2 2025	Reviewer for Journals, Nature Communications, 3 articles [Fiscal Year: 2024-09-01]
Term 1 2020 - Ongoing	Member of the Editorial Advisory Board of Protein Engineering Design and Selection, Protein Engineering Design and Selection [Fiscal Year: 2024]

***Outreach Activities [For Unit Members Only]***

Term 1 2025	Karolina Honzejkova, Building Inclusive, Interactive, and International Pathways in Science – A Guided Visual Tour, United Nations Science Summit [Fiscal Year: 2025-09-01]
Term 1 2025	Amy Gooch, Interview Session with Kyoto Prefectural Momoyama High School Visit, OIST [Fiscal Year: 2025-10-14]
Term 1 2025	Erika Fukuhara, Building Inclusive, Interactive, and International Pathways in Science – A Guided Visual Tour, United Nations Science Summit [Fiscal Year: 2025-09-01]
Term 2 2025	Yusran Abdillah Muthahari, Graduate School Admission Workshop 2025, OIST [Fiscal Year: 2025-04-01]