

Unit Name

Evolution, Cell Biology, and Symbiosis Unit
Associate Professor Filip Husnik

Collaborations

Marek Elias, Ostrava University, Czech Republic, Symbioses of protists
Cheryl Ames, Tohoku University, Japan, Symbioses of marine invertebrates and eDNA
James Reimer, University of Ryukyus, Japan, Symbioses of marine invertebrates
Hidetaka Nomaki, JAMSTEC, Japan, Symbioses of foraminifera
Kevin Wakeman, Hokkaido University, Japan, Symbioses of dinoflagellates
Courtney Stairs, Lund University, Sweden, Symbioses of anaerobic protists
Ivan Cepicka, Charles University, Czech Republic, Symbioses of anaerobic protists
Roxanne Beinart, University of Rhode Island, USA, Symbioses of anaerobic protists
Lynn Cook, University of Queensland, Australia, Scale insect phylogenomics
Andrew Mongue, University of Florida, USA, Scale insect genomics
Laura Ross, University of Edinburgh, UK, Scale insect genomics
Takeshi Obayashi, Tohoku University, Japan, Plankton diversity
Tomas Pluskal, IOCHB Prague, Czech Republic, Metabolomics
Eric Libby, Umea University, Sweden, Metabolic modeling of symbioses
Akinori Yabuki, JAMSTEC, Japan, Heterotrophic protists
Ryoma Kamikawa, Kyoto University, Japan, Heterotrophic protists
Kenji Suetsugu, Kobe University, Japan, Heterotrophic plants

Research Personnel

Michelle Leger, Staff Scientist
Dewi Langlet, Visiting Researcher
Claudia Rabuffo, Postdoctoral Scholar
Lison Hey, Research Intern
Jinyeong Choi, Postdoctoral Scholar
Arno Hagenbeek, PhD student
Yong Heng Phua, PhD student
Yi-Kai Fang, Research Unit Technician
Maria Eduarda Alves dos Santos, Visiting Researcher
Yumiko Masukagami, Research Unit Technician
Yufu Unten, Visiting Researcher, Suntory Global Innovation Center Co. Ltd.

Pradeep Palanichamy, PhD student
Anastasiia Borodina, PhD student
Claudia Rabuffo, Canon Research Fellow
Vasyl Vaskivskyi, PhD student
Javier Tejeda Mora, PhD student
Pradeep Palanichamy, PhD student
Vera Emelianenko, PhD student
Kotchanipa Rukruam, Research Intern, Ph.D. student at NTU, Singapore (The Thai Princess Scholarship)
Vivienne Gao, Research Intern, Ph.D. student at University of Warwick, UK
Gayun Kim, Research Intern
Sarikece Huseyin, Research Intern
Yulia Shcherbakova, Rotation Student
Javier Andres Tejeda Mora, PhD Student
Arno Ardjoena Hubertus Willem Ferdinand Hagenbeek, PhD Student
Riko Chinen, PhD Student
Lison Prune Ilhem Hey, Research Intern
Tianyu Lu, Research Intern
Guan Xi Liu, Research Intern
Kang Rang Marcus Lin, Research Intern
Sofia Porkhun, Research Intern
Vivienne Wen Gao, Research Intern
Huseyin Sarikece, Research Intern
Sara Baisotti, Research Intern
Kurt Bryant Bacharo, Visiting Research Student
Doron Pinko, Visiting Research Student
Akito Shima, Visiting Research Student
Jake Harry Lewis, Visiting Research Student

Scholarly Contributions and Creative Productions (by Faculty)

Journal Article

1. Unten, Y.; Takafuji, Ka.; Masukagami, Y.; Shiiba, I.; Horiuchi, K.; Husnik, F.; Yanagi, S.; Tateishi, N.; Suzuki, T.
Characterizing Mitochondrial Phenotypes and MERCS in Aged Human Skeletal Muscle Myoblasts. PLOS ONE 2025, 21, 1–14.
2. Liu, C.; Hellemans, S.; Kinjo, Y.; Mikhailova, A. A.; Aumont, C.; Weng, Y.-M.; Bu??ek, A.; Husnik, F.; ??obotn??k, J.; Harrison, M. C.; McMahon, D. P.; Bourguignon, T.
Recurrent Horizontal Gene Transfers across Diverse Termite Genomes. Evolution 2025, qpag003.
3. Mikus, F.; Ramos, A. R.; Shah, H.; Hellgoth, J.; Olivetta, M.; Borgers, S.; Saint-Donat, C.; Ara??jo, M.; Bhickta, C.; Cherek, P.; Bilbao, J.; Txurruka, E.; Eglit, Y.; Leisch, N.; Schwab, Y.; Husnik, F.; Seoane, S.; Probert, I.; Guichard, P.; Hamel, V.; Dey, G.; Dudin, O.

- Charting the Landscape of Cytoskeletal Diversity in Microbial Eukaryotes. *Cell* 2025, 188, 7610–7628.e13.
4. Adiwira, H.; Yasunaka, S.; Kass, J. M.; A????kba??, A.; Adiningsih, S.; Gairin, E.; Ilham, H.; Lahcene, E.; Li, Y.; Nishihira, G.; Pe??alver-Pereira, P.; Sie, F.; Amedo-Repollo, C. L.; Ames, C. L.; Armitage, D.; Br??nnstr??m, ??ke; Dieckmann, U.; Fujii, T.; Husnik, F.; Kawamiya, M.; Masuda, T.; Plessy, C.; Sallan, L.; Shimada, T.; Smith, S. L.; Strutton, P. G.; Wirasatriya, A.; Suga, T.
Pathways to an Integrated Understanding of Marine Environments and Ecosystems in the Asia-Pacific Region. *Frontiers in Marine Science* 2025, Volume 12 - 2025.
 5. Emelianenko, V.; Savchenko, A. S.; Husnik, F.; Huys, R.
Live Observations of Endoparasitic Stages of *Cymbasoma* Sp. and *Monstrilla* Sp. (Copepoda: Monstrilloida) Utilizing Sympatric Sponge-Associated *Haplosyllis* Spp. (Polychaeta: Syllidae) in Okinawa. *Plankton and Benthos Research* 2025, 20, s235–s241.
 6. Husnik, F.; Hueilimann, R.; Wee, H. B.; Alves dos Santos, M.; Kise, H.; Mizuyama, M.; Dudoit, 'Ale 'alani; Jamodiong, E.; Satoh, N.; Soong, G. Y.; Kurihara, H.; Toonen, R. J.; Iguchi, A.; Ravasi, T.; Reimer, J. D.
Shifts in Coral Reef Holobiont Communities in the High-CO₂ Marine Environment of Iōtorishima Island. *PLOS Climate* 2025.
 7. Choi, J.; Palanichamy, P.; Tanaka, H.; Kondo, T.; Gruwell, M. E.; Husnik, F.
Accelerated Pseudogenization in the Ancient Endosymbionts of Giant Scale Insects. *Molecular Biology and Evolution* 2025, 42, msaf125.
 8. Pinko, D.; Langlet, D.; Sur, O.; Husnik, F.; Holzmann, M.; Rubin-Blum, M.; Rahav, E.; Belkin, N.; Kucera, M.; Morard, R.; Abdu, U.; Upcher, A.; Abramovich, S.
Long-Term Functional Kleptoplasty in Benthic Foraminifera. *iScience* 2025.

Presentation at Conference

1. Husnik, F.
The Origin and Evolution of Metabolic, Cellular, and Genomic Mosaicism in Mealybug Endosymbioses. The 48th Annual Meeting of the Molecular Biology Society of Japan 2025.
2. Husnik, F.
Non-Photosynthetic Plastid Replacement by a Primary Plastid in the Making. The 9th Annual Meeting of the Japanese Society for Symbiosis 2025.
3. Husnik, F.
Volume Electron Microscopy of Single Protist Cells. 16th International congress of protistology 2025.

Seminars

1. Husnik, F.
Integrating Plankton Imaging with eDNA as a Policy Tool: Early Warnings for Healthier Oceans and Coastal Communities. 2026.
2. Husnik, F.
The Origin and Evolution of Metabolic, Cellular, and Genomic Mosaicism in Mealybug Endosymbioses. 2026.
3. Husnik, F.
Foraminifera: One of the Last Frontiers of Protist Symbioses. 2025.
4. Husnik, F.
The Fate of Obligate Endosymbionts: Reduction, Integration, or Extinction. 2025.
5. Husnik, F.
The Fate of Obligate Endosymbionts: Reduction, Integration, or Extinction. 2025.
6. Husnik, F.
The Fate of Obligate Endosymbionts: Reduction, Integration, or Extinction. 2025.

7. Husnik, F.

Two Billion Years of Eukaryotic Symbioses. 2024.

Scholarly Contributions (by Unit Members)

Name of Unit Member	Type	Title	Outlet	Publisher	Year Pub
Jinyoeng Choi	Journal Article	Taxonomic review of three species of the genus <i>Pseudococcus</i> Westwood, 1840 (Hemiptera: Coccothraupidae: Pseudococcidae) found in Okinawa Island, Japan, with description of a new species	Zootaxa		2025
Michelle Leger	Journal Article	Reconstructing the last common ancestor of all eukaryotes		PLoS Biology	2024
Pradeep Palanichamy	Poster Presentation at Conference	Symbiont genome evolution: From plant sap to insect hosts	Phyllosphere 12		
Javier Tejeda Mora	Poster Presentation at Conference	Integrating -omics and 3D imaging for a bacterium within bacterium within insect endosymbiosis	12th Wolbachia Conference		
Vivienne Gao	Poster Presentation at Conference	Global population genomics of <i>Palythoa</i> corals indicates connectivity between the Atlantic, Indian, and Pacific oceans	Hot Chanpuru Science Conference, University of the Ryukyus		
Vera Emelianenko	Poster Presentation at Conference	Exploring Diverse Symbiotic Microeukaryotes Associated With Okinawa Coral Reefs	Hot Chanpuru Science Conference, University of the Ryukyus		
Dewi Langlet	Poster Presentation at Conference	"Hoshizuna: the floating star sand" art installation	Deep-Sea Biology Symposium, Hong Kong		2025
Dewi Langlet	Poster Presentation at Conference	Meiobenthos contribution to bioturbation	Deep-Sea Biology Symposium, Hong Kong		2025
Vasyl Vaskivskyi	Poster Presentation at Conference	Preliminary test for the identification of protist species with Raman spectroscopy	16th International Congress of Protistology ICOP 2025		
Anastasiia Borodina	Poster Presentation at Conference	Evolutionary Cell Biology of Aerobic and Anaerobic Jakobids	16th International Congress of Protistology 2025		
Riko Chinen	Poster Presentation at Conference	Major innovations and adaptations in coral evolution	Okinawa Marine Science Workshop		
Yumiko Masukagami	Poster Presentation at Conference	Two convergently reduced clades of mollicute symbionts of marine invertebrates retain extensive sets of defence mechanisms against viruses	OISTxWPI-AIMEC (Tohoku U & JAMSTEC)- Joint Workshop		

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Riko Chinen	Poster Presentation at Conference	Major innovations and adaptations in coral evolution	OISTxWPI-AIMEC (Tohoku U & JAMSTEC)- Joint Workshop		
Dustin Dial	Poster Presentation at Conference	Gene shuffling and accelerated sequence evolution in scale insect mitochondrial genomes	XII International Symposium on Aphids		
Pradeep Palanichamy	Presentation at Conference	Exploring Wolbachia diversity and functions in scale insects	12th Wolbachia Conference		
Michelle Leger	Presentation at Conference	Stress, recognition and death: the role of environmental responses and inter-organismal relationships in the emergence of animals	Origins of Eukaryotic Excitability		
Vera Emelianenko	Presentation at Conference	Exploring Symbiodiniaceae and other diverse symbiotic microeukaryotes associated with Okinawan coral reefs	Japan PhD Student Meeting in Evolutionary Biology 2025		
Vera Emelianenko	Presentation at Conference	Exploring Symbiodiniaceae and other diverse symbiotic microeukaryotes associated with Okinawan coral reefs and reef flats	OIST x WPI-AIMEC (Tohoku U & JAMSTEC) Joint Workshop		
Phua Yong Heng	Presentation at Conference	Integrating high-throughput microscopy with single-cell transcriptomics reveals hidden diversity and symbiotic interactions in marine protists.	Annual Meeting of the Japanese Society for Symbiotic Biology		
Arno Hagenbeek	Presentation at Conference	Open-ocean bobtail squids harbor bioluminescent symbionts with reduced genomes	Cephalopod International Advisory Council (CIAC)		
Dustin Dial	Presentation at Conference	Dynamic host-symbiont coordination across natural nutritional variation in the Cooley spruce gall adelgid, <i>Adelges cooleyi</i>	XII International Symposium on Aphids		
Jinyeong Choi	Presentation at Conference	Cellular and metabolic integration shape scale insect-microbe obligate symbiosis	XII International Symposium on Aphids		
Javier Tejeda Mora	Presentation at Conference	Usage of computational methods, omics, and imaging to describe non-model symbiotic systems	Hot Chanpuru Science Conference, University of the Ryukyu		
Michelle Leger	Presentation at Conference	The changing tree of Holozoa in light of metagenomics	16th International Congress of Protistology 2025		
Anastasiia Borodina	Presentation at Conference	Evolutionary cell biology of aerobic and anaerobic jakobids	Hot Chanpuru Science Conference, University of the Ryukyu		

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Dustin Dial	Presentation at Conference	Dynamic host-symbiont coordination across natural nutritional variation in the Cooley spruce gall adelgid, <i>Adelges cooleyi</i>	ISI-net 2025 meeting in Saga		
Jinyeong Choi	Presentation at Conference	The origin and evolution of genome chimerism in the mealybug endosymbiont <i>Tremblaya phenacola</i>	The 12th Wolbachia Conference		
Phua Yong Heng	Presentation at Conference	Integrating high-throughput microscopy with single-cell transcriptomics reveals hidden diversity and symbiotic interactions in marine protists.	16th International Congress of Protistology 2025		
Vera Emelianenko	Presentation at Conference	Exploring Symbiodiniaceae and other diverse symbiotic microeukaryotes associated with Okinawan coral reefs	16th International Congress of Protistology 2025 (ICOP-ISOP 2025)		
Arno Ardjoena Hubertus Willem Ferdinand Hagenbeek	Presentation at Conference	Alphaproteobacterial symbiont of arthropods in marine nematode	12th Wolbachia Conference		
Jinyeong Choi	Seminars	Parallel Evolution of Microorganisms as Long-Term Endosymbionts of Scale Insects	Biological Science College, Seoul National University		

Honors, Awards & Fellowships [By Unit Members Only]

Term 2 2025 - Term 2 2025	Anastasiia Borodina, Holz-Conner Award (travel grants), ホルツ-コナー賞, 2025, International Society of Protistologists, 学会年次会議参加のための旅費助成金 [Fiscal Year: 2025]
Term 2 2025 - Term 2 2025	Olha Sur, Holz-Conner Award (travel grants), ホルツ-コナー賞, 2025, International Society of Protistologists, 学会年次会議参加のための旅費助成金 [Fiscal Year: 2025]
Term 2 2025 - Term 2 2025	Michelle Lefer, Funding Award, Funding Award, 2024, International Society of Protistologists, International Society of Protistologists Special Symposium funding award [Fiscal Year: 2024]
Term 2 2025 - Term 3 2025	Claudia Rabuffo, Canon Foundation Research Fellowships, Canon Foundation 招聘研究者, 2025, Canon Foundation in Europe, 生命科学：水平遺伝子転移によって獲得された遺伝子の取得および制御における三次元ゲノム構造の役割 [Fiscal Year: 2025]

External Service

Term 2 2026 - Term 2 2026	Peer review, Communications Biology [Fiscal Year: 2026-03-05]
Term 2 2026 - Term 2 2026	Peer review, Nature Ecology and Evolution [Fiscal Year: 2025-05-19]
Term 2 2025 - Term 2 2025	Peer review, Molecular Ecology [Fiscal Year: 2025-10-29]
Term 2 2025 - Term 2 2025	Peer Reviewer, Current Biology [Fiscal Year: 2024]

Outreach Activities [For Unit Members Only]

Term 2 2026	Riko Chinen, Female Scientist Career Talk, HiSci Lab 2026 [Fiscal Year: 2025]
Term 1 2025	Vera Emelianeko, Interview Session, Kyoto Prefectural Momoyama High School Visit [Fiscal Year: 2025]
Term 1 2025	Vera Emelianeko, Discussion Session, Kanagawa Prefectural Hakuyo High School Visit [Fiscal Year: 2025]
Term 1 2025	Riko Chinen, SEED Program (Conference), OIST [Fiscal Year: 2025]
Term 3 2025	Vera Emelianeko, Interview Session, Tokyo Yamawaki High School Visit [Fiscal Year: 2025]
Term 3 2025	Riko Chinen, SEED Program (School visit), Kaiho High School, Okinawa [Fiscal Year: 2025]

Workshops and Seminars [Organized and Hosted by Faculty/Units]

Speaker Name(s)	Title	Location	Date
Dr. Eric Libby	The evolution of metabolic endosymbioses	L4F01, L4	2025
Dr. Anthony M. Bonacolta	Endosymbiotic Apicomplexans of Marine Holobionts: bridging ecology & evolution	C700, Lab3	2025
Dr. Yana Eglit	Harpoons and cartwheels: from heterotrophic protist organism discovery to evolutionary cell biology	L4E01, Lab4	2025
Dr. Kristina Prokina	Multigene phylogeny and expansion microscopy of <i>Discocelia plataet</i> sp. n., a new representative of a poorly characterized order Discocelida (Rhizaria: Cercozoa incertae sedis)	L4F01, Lab4	2025
Dr. Kathrine Tan	Phospholipid Dependency in Buchnera-Aphid Symbiosis: A Bioinformatics and Biochemical Perspective	L4F01, Lab4	2024
Prof. Piotr Łukasik	The uncharted territory: the extreme evolutionary processes in planthopper symbioses	L4F01, L4	2024