

# CURRUVULUM VITAE

## Masahito Tsuboi

*Date of birth:* 1985.12.21

*Gender:* Male, *Nationality:* Japanese, *Marital/family status:* Married, one child and one dog

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### OVERVIEW

I am an early career evolutionary biologist interested in **macroevolution**. Currently and previously, I studied Lake Tanganyika cichlids (Cichlidae), Pipefish and Seahorse (Syngnathidae), Deer (Cervidae), and flies (Drosophilidae). My research uses **phylogenetic comparative method** and **geometric morphometrics** as main operational tools and **quantitative genetics** as theoretical bases. Currently, I am a **Swedish Research Council International Postdoc Fellow** leading a project investigating how macroevolutionary patterns are related to evolutionary processes at microevolutionary levels. In this project, I apply the **concept of evolvability** for a big and exceptionally accurate dataset of wing morphology of the fly family Drosophilidae to uncover the role of multivariate genetic constraints in macroevolutionary time scales. I have a growing interest in **phenomics**, an area of research on high-dimensional phenotypic traits obtained through a high-throughput phenotyping platform.

### EDUCATION

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- 2015      **Ph.D. in Biology with special focus on Animal Ecology**  
Department of Ecology and Genetics/ **Uppsala University**/ Evolutionary Biology  
Centre/ Sweden  
Supervisor    : Prof. Niclas Kolm
- 2010      **M.Sc. in Agriculture** Faculty of Agriculture/ **Kyoto University**/ Japan
- 2008      **B.Sc. in Agriculture** Faculty of Agriculture/ **Kyoto University**/ Japan

### CURRENT POSITION

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- 2018-2021    **Lund University**  
**Swedish Research Council International Postdoc Fellow**  
Project title    : Evolution of multivariate genetic constraints  
Funder          : Vetenskapsrådet (the Swedish Research Council)  
Group leader   : Prof. Erik Svensson  
Mobility        : Yes (I did my PhD at Uppsala University)  
Duration        : From 1st January 2018 to 30th June 2021

## PREVIOUS RESEARCH POSITIONS

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- 2017      **University of Oslo**  
**Marie Skłodowska-Curie Fellow**  
Project title    : Evolution of multivariate genetic constraints  
Funder            : The European Commission  
Host              : Prof. Thomas F. Hansen
- 2016      **University of Oslo (Norway)/SOKEN University (Japan)**  
**JSPS Postdoctoral Research Fellow**  
Project title    : Adaptation and constraints in deer antler evolution  
Funder            : Japanese Society for Promotion of Science (JSPS)  
Host              : Prof. Thomas F. Hansen, Prof. Nobuyuki Kutsukake
- 2016      **Stockholm University**  
**Postgraduate Researcher**  
Project title    : Evolution of brain-body allometry across vertebrates  
Host              : Prof. Niclas Kolm

## FUNDING OBTAINED

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- 2018-2021    Swedish Research Council (Vetenskapsrådet) International Postdoc Fellow  
Role: Principal Investigator (PI), Amount awarded: *107,000 EUR/year*
- 2017          Marie Skłodowska-Curie Individual Fellowship  
Role: PI, Amount awarded: *104,200 EUR/year*
- 2016          JSPS, Research fellowship for young scientists  
Role: PI, Amount awarded: *48,000 EUR/year*
- 2016          Research Council of Norway, Japan-Norway Researcher Travel Stipend  
Role: PI, Amount awarded: *371,000 NOK/40,000 EUR*
- 2011-2015    Japanese Student Service Organization (JASSO), Student Exchange Support  
Program (stipend for PhD study abroad)  
Role: PhD candidate, Amount awarded: *12,000 EUR/year*
- 2011- 2015    Zoologiska stiftelse, Travel grant (*120,000 SEK /12,500 EUR*)  
2013, 2014    Helge Ax:son Johnsons stiftelse, Travel grant (*30,500 SEK/3,100 EUR*)

## PUBLICATIONS

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I have published **11 publications** in international peer-reviewed scientific journals. **I am the leading author of 10 publications** which in my field means that I made the majority of contribution to most of my published work. I have **one single-authored paper** and **one paper rated as "exceptional" in F1000**.

Google Scholar - 125 citations, h-index = 7; as of 3rd September 2019

### A. Published Articles

1. **Tsuboi, M.** Biological interpretations of the biphasic model of ontogenetic brain-body allometry: a reply to Packard. *accepted in Biological Journal of the Linnean Society*
2. **Tsuboi, M.**, van der Bijl, W., Kopperud B.T., Erritzøe, J., Voje, K.L., Kotrschal, A., Yopak, K.E., Collin, S.P., Iwaniuk, A.N., and Kolm, N. Reply to "Comparison of static brain-body allometries across vertebrates must distinguish between indeterminate and determinate growth". *accepted in Nature Ecology & Evolution*
3. **Tsuboi, M.**, van der Bijl, W., Kopperud B.T., Erritzøe, J., Voje, K.L., Kotrschal, A., Yopak, K.E., Collin, S.P., Iwaniuk, A.N., and Kolm, N. (2018) Breakdown of brain-body allometry and the encephalization of birds and mammals. *Nature Ecology & Evolution* 2:1492-1500 (**this paper is rated as "exceptional" in F1000**)
4. Hayward, A., **Tsuboi, M.**, Owusu, C., Kotrschal, A., Buechel, D. S., Zidar, J., Cornwallis, C.K., Løvlie, H., and Kolm, N. (2017) Evolutionary associations between host traits and parasite load: insights from Lake Tanganyika cichlids. *Journal of Evolutionary Biology* 30:1056-1067
5. **Tsuboi, M.**, Lim, A.C.O., Ooi, B.L., Yip, M.E., Chong, V.C., Ahnesjö, I. and Kolm, N. (2017) Brain size evolution in pipefishes and seahorses: the role of feeding ecology, life history and sexual selection. *Journal of Evolutionary Biology* 30:150-160
6. **Tsuboi, M.**, Kotrschal, A., Hayward, A., Buechel, D. S., Zidar, J., Løvlie, H., and Kolm, N. (2016) Evolution of brain-body allometry in Lake Tanganyika cichlids. *Evolution* 70: 1559-1568.
7. **Tsuboi, M.**, Shoji, J., Sogabe, A., Ahnesjö, I, and Kolm, N. (2016) Within species support for the expensive tissue hypothesis: a negative association between brain size and visceral fat storage in females of Pacific seaweed pipefishes. *Ecology and Evolution* 6: 647-655.
8. **Tsuboi, M.**, Gonzalez-Voyer, A., and Kolm, N. (2015) Functional coupling constraints craniofacial diversification in Lake Tanganyika cichlids. *Biology Letters* 11: 20141053.
9. **Tsuboi, M.**, Husby, A., Kotrschal, A., Hayward, A., Buechel, D. S., Zidar, J., Løvlie, H., and Kolm, N. (2015) Comparative support for the expensive tissue hypothesis: big brains are correlated with smaller gut and greater parental investment in Lake Tanganyika cichlids. *Evolution* 69: 190-200.
10. **Tsuboi, M.**, Gonzalez-Voyer, A., and Kolm, N. (2014) Phenotypic integration of brain size and head morphology in Lake Tanganyika cichlids. *BMC Evolutionary Biology* 14:39.
11. **Tsuboi, M.**, Gonzalez-Voyer, A., Höglund, J., and Kolm, N. (2011) Ecology and mating competition influence sexual dimorphism in Tanganyikan cichlids. *Evolutionary Ecology* 26: 171-185

## PRESENTATIONS

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### Invited Talks

- Dec. 2019* **Keynote presentation** on symposia "phenotypic evolvability", the 42<sup>nd</sup> Annual Meeting of the Molecular Biology Society of Japan, Fukuoka, Japan, Symposia organizers: Prof. Chikara Furusawa and Dr. Naoki Irie
- Apr. 2019* Lecture series in Aquatic Ecology and Evolution, EAWAG, Kastanienbaum, Switzerland, Host: Dr. Kotaro Kagawa
- Nov. 2018* University of Tokyo, Tokyo, Japan, Host: Prof. Chikara Furusawa
- Oct. 2018* the National Institute of Genetics, Mishima, Japan, Host: Prof. Jun Kitano
- Sept. 2018* the 46<sup>th</sup> Naito Conference on Mechanisms of Evolution and Biodiversity, Sapporo, Japan
- Aug. 2017* the 16<sup>th</sup> Congress of the European Society for Evolutionary Biology, Groningen, the Netherlands
- Mar. 2015* the 62<sup>nd</sup> Annual Meeting for Ecological Society of Japan (invited but declined), Kagoshima, Japan
- Nov. 2014* Academic conference of modern phylogenetic comparative methods, Seville, Spain

### Conference, Seminar and Workshop Contributions (\* denotes poster presentation)

- Aug. 2019* Start-up workshop of the Center for Advanced Studies (CAS) project on evolvability, Oslo, Norway
- Oct. 2018* Departmental seminar, Chiba University, Japan, Host: Dr. Yuma Takahashi
- Sept. 2018* Departmental seminar, Tohoku University, Japan, Host: Dr. Daisuke Kyogoku
- Jun. 2018* Departmental seminar, the Smithsonian National Museum of Natural History, Washington D.C., USA, Host: Prof. Gene Hunt
- Apr. 2018* Departmental seminar, University of Lyon, Lyon, France, Host: Prof. Jean-Michelle Gaillard
- Feb. 2018* Workshop on allometry and comparative methods, the Norwegian University of Science and Technology, Trondheim, Norway
- May. 2017* \*the 3<sup>rd</sup> Syngnathid Biology International Symposium, Tampa, Florida, USA
- Jul. 2016* \*30<sup>th</sup> International Congress of the Society of Behavioural Ecology, Exeter, U.K.
- Aug. 2015* \*the 15<sup>th</sup> Congress of the European Society for Evolutionary Biology, Lausanne, Switzerland
- Mar. 2014* the 61<sup>st</sup> annual meeting for Ecological Society of Japan, Hiroshima, Japan
- Aug. 2013* \*the 14<sup>th</sup> Congress of the European Society for Evolutionary Biology, Lisbon, Portugal
- Mar. 2013* \*the 2<sup>nd</sup> Syngnathid Biology International Symposium, Faro, Portugal
- Jul. 2011* \*the 13<sup>th</sup> Congress of the Japanese Society for Evolutionary Biology, Kyoto, Japan
- Mar. 2009* Oral presentation in Japanese, the 53<sup>rd</sup> Congress of the Japanese Society for Applied Entomology and Zoology, Sapporo, Japan
- Mar. 2008* \*the 55<sup>th</sup> Annual Meeting for Ecological Society of Japan, Fukuoka, Japan

## SUPERVISION

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- 2013 Christian Owusu (MSc student)  
Thesis title : Comparative analysis of macro-parasite communities in Lake Tanganyika cichlids  
Role : co-supervisor with Prof. Niclas Kolm and Dr. Alexander Hayward  
Description : I have mentored the usage and interpretations of phylogenetic comparative analyses used in the study. The thesis project is now published.

## TEACHING

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- Nov. 2014 Part time lecturer in a master level course "Ethology II", Department of Zoology, Stockholm University, Sweden  
Topic : Phylogenetic comparative analyses of animal behaviour  
Description : I gave 3-days tutorial of phylogenetic comparative methods, with a lecture for 1.5 day and computer exercise using Mesquite and R for 1.5 day.

## FIELD EXPEDITIONS

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Lake Tanganyika (Jul.-Aug. 2012): I organized a field expedition to Lake Tanganyika (Zambia) in 2012 with Dr. Alexander Kotrschal and Dr. Alexander Hayward. We made a formal agreement to conduct a field sampling with Department of Fishery in compliance with Zambian legislation. Through our own sampling effort and help from local researchers, we have assembled **651 individuals across 61 species** of Lake Tanganyika cichlids during our expedition. **I have published three papers** from the data collected in my expedition to Zambia.

Malay Peninsula (Jul.-Aug. 2014): I organized a field expedition to Malay Peninsula (Malaysia) in 2014 to collect samples of pipefishes and seahorses. I built a research collaboration scheme with Prof. Ving Ching Chong and Dr. Adam Lim Chee Ooi at the Institute of Biological Sciences in University of Malaya. Through field sampling with local collaborators at 10 sampling sites across Malay Peninsula, we have collected **148 individuals across 14 species** of pipefishes and seahorses. **Results from this expedition is now published in Journal of Evolutionary Biology.**

## PROFESSIONAL ACTIVITIES

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- Hiring committee of a Postdoc position at the Center for Ecological and Evolutionary Synthesis, University of Oslo (2017)
- An examiner of a master thesis by Marina de la Cámara Peña at University of Oslo (2019)

## MERITS

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- One paper received the highest rate in F1000 "exceptional"
- Received an excellent reviewer award of 2018 in *Evolution: International Journal of Organic Evolution*

## **REVIEWING**

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The American Naturalist	Evolution	Journal of Human Evolution
Animal Biology	Evolutionary Ecology	Scientific Report
Behavioural Ecology	Hydrobiologia	PeerJ
Brain, Behaviour and Evolution	Ichthyological Research	
BMC Evolutionary Biology	Journal of Evolutionary Biology	
Biological Journal of the Linnean Society		
Journal of the Royal Society Interface		
Proceedings of the Royal Society B: Biological Sciences		

## **SOCIETAL MEMBERSHIP**

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European Society for Evolutionary Biology  
Japanese Society of Ecology  
Japanese Society of Evolutionary Biology

## REFERENCE PERSONS

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**Erik Svensson** (Postdoc host)

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**Alexander Kotrschal** (PhD mentor)

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