

# CURRICULUM VITAE

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## Filip Husník

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### CONTACT INFORMATION

**EMBO postdoctoral research fellow, laboratory of Patrick Keeling**  
University of British Columbia, Faculty of Science, Department of Botany  
3529-6270 University Boulevard, Vancouver, BC, V6T 1Z4, Canada  
E-mail: [filip.husnik@gmail.com](mailto:filip.husnik@gmail.com)  
Personal website: [www.filiphusnik.com](http://www.filiphusnik.com)  
Google Scholar profile: <https://scholar.google.com/citations?user=cMf9LXwAAAAJ>

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### EDUCATION

2012-2017

**Ph.D. (cum laude), Molecular and Cell Biology and Genetics**  
Department of Molecular Biology and Genetics, Faculty of Science, **University of South Bohemia** & Institute of Parasitology, **Czech Academy of Sciences**, Czech Republic. Thesis: *Genomic and Cellular Integration in the Tripartite Nested Mealybug Symbiosis*. Supervisor: John McCutcheon (University of Montana).  
University guarantor: Miroslav Oborník

2012

**RNDr., Parasitology**  
Faculty of Science, **University of South Bohemia**, Czech Republic

2010-2012

**M.S., Parasitology**  
Department of Parasitology, Faculty of Science, **University of South Bohemia**, Czech Republic. Thesis: *Evolutionary origins of intracellular symbionts in arthropods*. Supervisors: Tomáš Chrudimský, Václav Hypša.

2007-2010

**B.S., Biology**  
Department of Parasitology, Faculty of Science, **University of South Bohemia**, Czech Republic. Thesis: *Molecular phylogeny of intracellular symbiotic Gammaproteobacteria in insects*. Supervisors: Tomáš Chrudimský, Václav Hypša.

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### PROFESSIONAL EXPERIENCE

Employment:

2017-2019

**EMBO postdoctoral research fellow, University of British Columbia**, Faculty of Science, Department of Botany, **laboratory of Patrick Keeling**

2012-2017

**Graduate student**, Institute of Parasitology, **Biology Centre of the Czech Academy of Sciences**

2010-2015

**Research worker, Faculty of Science, University of South Bohemia**

Research stays:

2016

**Visiting Student (03/07-14/07)**  
Anna Michalik lab, **Jagiellonian University**, Krakow, Poland

2015

**Visiting Student** (06/10-31/10)  
Laura Ross lab, **University of Edinburgh**, Edinburgh, UK  
2014-2015  
**Fulbright Visiting Student Researcher** (18/08-25/05)  
John McCutcheon lab, **University of Montana**, Missoula, USA  
2012-2013  
**Erasmus Visiting Student Researcher** (31/10-04/02)  
Alistair Darby lab, **University of Liverpool**, Liverpool, UK  
2011  
**Visiting Student** (03/06-17/08)  
John McCutcheon lab, **University of Montana**, Missoula, USA

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#### PEER-REVIEWED PUBLICATIONS

**Husník F**: Host-symbiont-pathogen interactions in blood-feeding parasites: nutrition, immune cross-talk and gene exchange. *Parasitology* 2018, doi: 10.1017/S0031182018000574.

**Husník F** & McCutcheon JP: Functional horizontal gene transfer from bacteria to eukaryotes. *Nature Reviews Microbiology* 2018, 16 (2): 67.

Gile GH, James ER, Tai V, Harper JT, Merrell TL, Boscaro V, **Husník F**, Scheffrahn RH, Keeling PJ: New species of Spirotrichonympha from Reticulitermes and the relationships among genera in Spirotrichonympha (Parabasalia). *Journal of Eukaryotic Microbiology* 2018, 65(2): 159-169.

Říhová J, Nováková E, **Husník F**, Hypša V: *Legionella* becoming a mutualist: adaptive processes shaping the genome of symbiont in the louse *Polyplax serrata*. *Genome Biology and Evolution* 2017, 9 (11): 2946-2957.

Šochová E, **Husník F**, Nováková E, Halajian A, Hypša V: Arsenophonus and Sodalis replacements shape evolution of symbiosis in louse flies. *PeerJ* 2017, 5: e4099.

**Husník F**, McCutcheon JP: Repeated replacement of an intrabacterial symbiont in the tripartite nested mealybug symbiosis. *Proceedings of the National Academy of Sciences of the United States of America* 2016, 113(3): E5416-5424.

Nováková E, Hypša V, Nguyen P, **Husník F**, Darby AC: Genome sequence of *Candidatus Arsenophonus lipopteni*, the exclusive symbiont of a blood sucking fly *Lipoptena cervi* (Diptera: Hippoboscidae). *Standards in Genomic Sciences* 2016, 11: 72.

Kyselková M, Chrudimský T, **Husník F**, Chroňáková A, Heuer H, Smalla K, Elhottová D: Characterization of tet (Y)-carrying LowGC plasmids exogenously captured from cow manure at a conventional dairy farm. *FEMS Microbiology Ecology* 2016, 92(6): fiw075.

Nováková E, **Husník F**, Šochová E, Hypša V: *Arsenophonus* and *Sodalis* symbionts in louse flies: an analogy to the *Wigglesworthia* and *Sodalis* system in tsetse flies. *Applied and Environmental Microbiology* 2015, 81 (18): 6189-6199.

Duncan RP, **Husník F**, Van Leuven JT, Gilbert DG, Dávalos LM, McCutcheon JP, Wilson ACC: Dynamic recruitment of amino acid transporters to the insect/symbiont interface. *Molecular Ecology* 2014, 23(6): 1608-1623.

**Husník F**, Nikoh N, Koga R, Ross L, Duncan RP, Fujie M, Tanaka M, Satoh N,

Bachtrog D, Wilson ACC, von Dohlen CD, Fukatsu T, McCutcheon JP: Horizontal Gene Transfer from Diverse Bacteria to an Insect Genome Enables a Tripartite Nested Mealybug Symbiosis. *Cell* 2013, 153(7): 1567-1578.

Chrudimský T, **Husník E**, Nováková E, Hypša V: *Candidatus* *Sodalis melophagi* sp. nov.: phylogenetically independent comparative model to the tsetse fly symbiont *Sodalis glossinidius*. *PLoS ONE* 2012, 7(7): e40354.

**Husník E**, Chrudimský T, Hypša V: Multiple origins of endosymbiosis within the Enterobacteriaceae ( $\gamma$ -Proteobacteria): convergence of complex phylogenetic approaches. *BMC Biology* 2011, 9:87.

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#### PRESENTATIONS AT CONFERENCES

2016

XIV International Symposium on Scale Insect Studies, Catania, Italy (13-16/06).  
Talk presentation.

2015

8th International Symbiosis Society Congress. Lisbon, Portugal (12-18/07). Talk  
presentation.

2014

Symbioses becoming permanent: The origins and evolutionary trajectories of  
organelles. Irvine, CA, USA (15-17/10). Poster presentation.

8th International Wolbachia Conference. Innsbruck, Igls, Austria (06-11/06). Talk  
presentation.

2013

12th International Colloquium on Endocytobiology and Symbiosis. Dalhousie  
University, Halifax, Nova Scotia, Canada (18-22/08). Talk presentation.

2012

7th International Symbiosis Society Congress. Krakow, Poland (22-28/07). Poster  
presentation.

7th International Wolbachia Conference and Final Meeting of the EU COST Action  
FA0701 "Arthropod Symbiosis: from fundamental studies to pest and disease  
management". La Vieille Perrotine, Ile d'Oléron, France (07-14/06). Poster  
presentation.

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#### OTHER LECTURES

2015

Charles University, Faculty of Science, Prague, Czech Republic (10/11)  
University of Edinburgh, Institute of Evolutionary Biology, Edinburgh, UK (15/10)

2014

University of Ostrava, Faculty of Science, Ostrava, Czech Republic (18/02)

2013

Charles University, Faculty of Science, Prague, Czech Republic (28/11)

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#### HONORS, AWARDS, AND FUNDING

2017-2019

**EMBO long-term postdoctoral fellowship** (laboratory of Patrick Keeling,  
University of British Columbia, Vancouver, Canada)

2017

Dean's award for excellent research results presented in PhD thesis.

2015

- 30 Under 30, Forbes Czech Republic
- 2014-2015 **Fulbright visiting student fellowship** (laboratory of John McCutcheon, University of Montana, Missoula, USA)
- 2014-2015 Grant Agency of the University of South Bohemia (001/2014/P, PI: Filip Husník) *Evolution of intrabacterial symbiosis in mealybugs: from mosaic pathways to mosaic organisms.*
- 2012-2013 **Erasmus visiting student fellowship** (laboratory of Alistair Darby, University of Liverpool, Liverpool, UK)
- 2012 Dean's award for excellent research results presented in master thesis.
- 2009 Student Grant Agency of the University of South Bohemia (Molecular phylogeny of symbiotic Gammaproteobacteria in insects)
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#### ATTENDED WORKSHOPS

Workshop on Genomics, Český Krumlov, Czech Republic (08-21/01/2012).

Host-microbe symbioses - old friends and foes. Instituto Gulbenkian de Ciencia, Oeiras, Lisbon, Portugal (19-31/07/2015).

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#### SKILLS

Laboratory methods: more than ten years of experience with basic molecular biology methods (incl. genomics and transcriptomics), microscopy methods (light, fluorescence/confocal, and TEM), and insect cell culture and symbiotic bacteria cultivation.

Bioinformatics and programming: good knowledge of Unix/Bash and phylogenomics, genomics, and transcriptomics programs, basic experience in Perl, Processing/Java, Python, R, and C++.

Languages: English (full professional proficiency), French (limited working proficiency), Czech (native).

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#### TEACHING AND STUDENTS

2016 Teaching assistant at the Workshop on Population and Speciation Genomics [<http://evomics.org/>], Cesky Krumlov, Czech Republic

Courses taught at the University of South Bohemia:

2014

Introduction to Genomics (selected lectures and exercises on Unix, databases and mapping, genomics, and transcriptomics)

2013

Biology of Parasites (selected lectures on phylogeny and evolution of parasites)

2012, 2013

Molecular Phylogenetics (selected lectures and exercises on probabilistic methods)

Mentoring students:

Kamila Machová, Bioinformatics cross-border B.S. student (University of South Bohemia/Johannes Kepler University of Linz). RNA biology of symbiotic bacteria in insects [defended in 2016].

Eva Šochová, Biology B.S. and Parasitology M.S. student. Genomics of symbiotic bacteria in bloodsucking insects [defended in 2014 and 2016].

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AD HOC REVIEWER FOR

Molecular Biology and Evolution, the ISME Journal, eLife, Evolution, Genome Biology and Evolution, Applied and Environmental Microbiology, the FEBS Journal, PeerJ, PloS One, Journal of Invertebrate Pathology, Physiological Entomology, Scientific Reports, Open Biology

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REFERENCES

***PhD advisors***

**John McCutcheon**

john[dot]mccutcheon[at]umontana[dot]edu

Division of Biological Sciences  
University of Montana  
32 Campus Drive, HS104  
Missoula, MT, 59812  
USA

**Miroslav Obornik**

obornik[at]paru[dot]cas[dot]cz

Institute of Parasitology  
Biology Centre of the Czech Academy of Sciences  
Branisovska 31  
Ceske Budejovice, 370 05  
Czech Republic

***Postdoc advisor***

**Patrick Keeling**

pkeeling[at]mail[dot]ubc[dot]ca

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University of British Columbia  
3529-6270 University Boulevard  
Vancouver, BC, V6T 1Z4  
Canada

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