

## Martina Gáliková, PhD.

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### Personal Information

Date and place of birth: 8.12.1984, Topoľčany, Slovakia  
Nationality: Slovak

### Education

**2009-2014: PhD study in Genetics**

Institute of Population Genetics, University of Veterinary Medicine, Vienna, Austria.  
Thesis: Reproductive physiology and aging in females of *Drosophila melanogaster*.  
PhD defense: 27th November 2014

**2007-2009: MSc study in Genetics and Molecular Biology**

Faculty of Natural Sciences, Comenius University, Bratislava, Slovakia. Graduation with distinction.  
Thesis: Role of apoptotic machinery in the apocrine secretion: a view from *Drosophila*.

**2004-2007: BSc study in Biology**

Faculty of Natural Sciences, Comenius University, Bratislava, Slovakia. Graduation with distinction.  
Thesis: Programmed cell death of salivary glands in *Drosophila melanogaster*.

### Work Experience & Training

**March 2019-present: Senior Researcher**, Institute of Zoology, Slovak Academy of Sciences, Bratislava, Slovakia.

**2017-2019: Post-doctoral fellow**, Stockholm University, Department of Zoology, Stockholm, Sweden.

**Projects:**

A peptidergic brain network establishing energy and nutrient balance in *Drosophila*.  
Hormonal regulations of *Drosophila* physiology by *Ion transport peptide*.

**2014-2017: Post-doctoral fellow**, Max Planck Institute for Biophysical Chemistry, Göttingen, Germany.

**Projects:**

Regulation of *Drosophila* physiology by glucagon-like and steroid signaling.  
Developmental and metabolic roles of phospholipase *PAPL1*.  
The effects of thermal stress on the fat storage of *Drosophila*.

**2013-2014: Pre-doctoral fellow**, Max Planck Institute for Biophysical Chemistry, Göttingen, Germany.

Project:

Regulation of *Drosophila* physiology by glucagon-like and steroid signaling.

**2009-2013: Graduate student researcher**, Institute of Population Genetics, University of Veterinary Medicine, Vienna, Austria.

Projects:

Reproductive physiology of *Drosophila*.

Trade-offs between reproduction and lifespan.

Natural variation in the morphological traits of *Drosophila*.

**2005-2009: Undergraduate training in *Drosophila* genetics**, Institute of Experimental Endocrinology, Slovak Academy of Sciences, Bratislava, Slovakia.

### Other Training

**Dorothea Schlözer Career Development Qualification Programme** (University of Göttingen, Germany, March 2015 - January 2016). Competitive program for 12 selected female participants. Program aiming to prepare for a leading role in research and teaching. The course combined a wide range of methods (individual and group coaching, workshops and training), mentoring and networking.

### Obtained Research Funding

Seal of Excellence research funding, 2019-2021, Slovak Academy of Sciences (69 600 EUR for research support).

### Recent Honors & Awards

STS Young leader - representation of the Slovak Academy of Sciences at the *Science and Technology in Society forum*, Kyoto, Japan, 2019.

L'ORÉAL-UNESCO For Women in Science fellowship, Slovakia – National Young Talents Programme, 2019.

Drobnica's Award (Slovakia, prize for the best work in biochemistry and molecular biology of a young investigator aged 35 or below), Slovakia, 2019.

Seal of Excellence Certificate (a quality label awarded to project proposals submitted to Horizon 2020, the EU's research and innovation funding program, to help these proposals find alternative funding), 2019.

### Scholarships

Carl Tryggers Fellowship, project: A peptidergic brain network establishing energy and nutrient balance in *Drosophila*. Sweden, 2/2017-2/2019.

Max Planck Fellowship, project: Regulation of glycaemia, insulin sensitivity, and *Drosophila* metabolism by glucagon-like signaling. Germany, 08/2016 – 01/2017.

Max Planck Fellowship, project: Control of lipid homeostasis in *Drosophila* adults by Adipokinetic and steroid hormones. Germany, 01/2015- 07/2016.

Max Planck Fellowship, project: Steroid control of lipid homeostasis in *Drosophila* adults.

Germany, 10/2013-01/2015.

### Research Output Metrics

Peer-reviewed publications: 16 (the first or the corresponding author on 10 publications)

Citations: 368 (data from Google Scholar, November 2019)

h-index: 9

i10-index: 9

### Publications

Klepsatel P.\*, Wildridge D., **Gáliková M.\*** Temperature induces changes in *Drosophila* fat reserves. 2019. *Scientific Reports*. Mar 27;9(1):5239. doi: 10.1038/s41598-019-41754-5. IF 4-01. Citations: 2. **\*corresponding author.**

Klepsatel P., Girish T. N., Dircksen H., **Gáliková M.** Reproductive fitness of *Drosophila* is maximised by optimal developmental temperature. 2019. *Journal of Experimental Biology*. 222(10). doi: 10.1242/jeb.202184. IF 3.02.

Klepsatel P.\*, Procházka M., **Gáliková M.\***. Crowding of *Drosophila* larvae affects lifespan and other life-history traits via reduced availability of dietary yeast. 2018. *Experimental Gerontology*. 110: 298-308. doi.org/10.1016/j.exger.2018.06.016. IF at the time of publishing 3.22. Citations: 8. **\*corresponding author.**

**Gáliková M.\***, Dircksen H., Nässel D. The thirsty fly: Ion transport peptide (ITP) is a novel endocrine regulator of water homeostasis of *Drosophila*. 2018. *PLOS Genetics*. 14(8):e1007618; doi: 10.1371/journal.pgen.1007618. IF at the time of publishing 5.54. Citations: 2. **\*corresponding author.**

**Gáliková M.\*** and Klepsatel P\*. Obesity and aging in the *Drosophila* model. 2018. *International Journal of Molecular Sciences*. 19:1896; doi:10.3390/ijms19071896. IF at the time of publishing 3.687. Citations: 12. **\*corresponding author.**

Brooke-Jones M., **Gáliková M.**, Dircksen H. Cyanobacterial Neurotoxin Beta-Methyl-Amino-l-Alanine Affects Dopaminergic Neurons in Optic Ganglia and Brain of *Daphnia magna*. 2018. *Toxins (Basel)*. 10(12), 527; doi: 10.3390/toxins10120527. IF at the time of publishing 3.27. Citations: 2.

**Gáliková M.\***, Klepsatel P., Münch J., Kühnlein R.P\*. Spastic paraplegia-linked phospholipase *PAPL1* is necessary for development, reproduction, and energy metabolism in *Drosophila*. *Scientific Reports*. 2017. Apr 19;7:46516. doi: 10.1038/srep46516. IF at the time of publishing 4.12. Citations: 4. **\*corresponding author.**

**Gáliková M.\***, Klepsatel P., Xu Y., Kühnlein R.P. The obesity-related Adipokinetic hormone controls feeding and expression of neuropeptide regulators of *Drosophila* metabolism. *European Journal of Lipid Science and Technology*. 2017. 119 (3), doi: 10.1002/ejlt.201600138. IF at the time of publishing 2.2. Citations: 26. **\*corresponding author.**

Garschall K., Dellago H., **Gáliková M.**, Schosserer M., Flatt T., Grillari J. Ubiquitous overexpression of the DNA repair factor *dPrp19* reduces DNA damage and extends *Drosophila* life span. 2017. *Aging and Mechanism of Disease*. doi:10.1038/s41514-017-0005-z. IF at the time of publishing – not awarded yet. Citations: 6.

Klepsatel P., **Gálíková M.**, Xu Y., Kühnlein R.P. Thermal stress depletes energy reserves in *Drosophila*. 2016. *Scientific Reports*. Sep 19;6:33667. doi: 10.1038/srep33667. IF at the time of publishing 4.26. Citations: 34.

**Gálíková M.**, Diesner M., Klepsatel P., Hehlert P., Xu Y., Bickmeyer I., Predel R., Kühnlein R.P. Energy homeostasis control in *Drosophila* adipokinetic hormone mutants. 2015. *Genetics*. 201:665-683. IF at the time of publishing 4.64. Citations: 75.

Klepsatel P., **Gálíková M.**, Huber C. D., Flatt T. Similarities and differences in altitudinal and latitudinal clines in morphological traits in *Drosophila melanogaster*. 2014. *Evolution*. 68:1385-98. IF at the time of publishing 4.61. Citations: 37.

Klepsatel P.\*, **Gálíková M.\***, De Maio N., Ricci S., Schlötterer C., Flatt, T. Reproductive and post-reproductive life history of wild-caught *Drosophila melanogaster* under laboratory conditions. 2013. *Journal of Evolutionary Biology* 26: 1508-1520. IF at the time of publishing 3.48. Citations: 44. **\*authors contributed equally.**

Klepsatel P., **Gálíková M.**, De Maio N., Huber C. D., Schlötterer C., Flatt T. Variation in thermal performance and reaction norms among populations of *Drosophila melanogaster*. 2013. *Evolution* 67: 3573-87. IF at the time of publishing 4.66. Citations: 49.

**Gálíková M.**, Klepsatel P, Senti G, Flatt T. Steroid hormone regulation of *C. elegans* and *Drosophila* aging and life history. 2011. *Experimental Gerontology* 46:141-147. IF at the time of publishing 3.74. Citations: 48.

**Gálíková M.**, Flatt T. Dietary restriction and other lifespan extending pathways converge at the activation of the downstream effector *takeout*. 2010. *Aging* 2:387-390. IF at the time of publishing 2.96. Citations: 18.

(citation data are from GoogleScholar, November 2019)

### Invited Lectures

Biocentrum of the University of Würzburg, Germany (July 2019, talk title: In search of a fly glucagon).

Dresden University of Technology, Germany (December 2018, talk title: In search of fly glucagon: Hunger, thirst and energy metabolism in *Drosophila*).

Faculty of Biological Sciences, University of South Bohemia, Czech republic (October 2018, talk title: The thirsty fly: Regulation of water homeostasis and energy balance by *Ion transport peptide*).

Max Planck Institute for Biophysical Chemistry, Göttingen, Germany (2016, Campus Seminar).

### Invited Talks at Research Conferences

Frontiers in Insect Physiology, Czech Budweiss, Czech republic, 2019

17<sup>th</sup> European *Drosophila* Neurobiology Conference, Krakow, Poland, 2018

28<sup>th</sup> Conference of European Comparative Endocrinologists, Leuven, Belgium, 2016

2<sup>nd</sup> German Fly Metabolism Meeting, Bonn, Germany, 2015

4<sup>th</sup> Meeting of the European Society for Evolutionary Biology, Lisbon, Portugal, 2012

2<sup>nd</sup> Vienna *Drosophila* Meeting, Vienna, Austria, 2010

### Other Presentations at International Conferences and Meetings

26<sup>th</sup> European *Drosophila* Research Conference, Lausanne, Switzerland, 2019 (poster)

Insect Hormones meeting, Crete, Greece, 2019 (talk)

25<sup>th</sup> European *Drosophila* Research Conference, London, Great Britain, 2017 (poster)  
The Allied Genetics Conference / 57<sup>th</sup> Annual *Drosophila* Research Conference, Orlando, FL, USA, 2016 (poster)

2<sup>nd</sup> International Insect Hormone Workshop, Kolymbari, Crete, Greece, 2015 (talk)

Ecdysone workshop at the 53<sup>rd</sup> Annual *Drosophila* Research Conference, Chicago, IL, USA, 2012 (talk)

53<sup>rd</sup> Annual *Drosophila* Research Conference, Chicago, IL, USA, 2012 (poster)

18<sup>th</sup> International Ecdysone Workshop, Budweis, Czech republic, 2010 (poster)

### Recent Outreach Activities for General Public

Talk at the *European Researchers' night*, September, 2019, Bratislava, Slovakia (talk title: Obesity studies in the fruit flies). Link: <https://www.nocvyskumnikov.sk/program/prednaska/lab/256.html>

Interview article for *SME*, one of the most widely read mainstream broadsheets in Slovakia. Topic: Obesity research in the fruit flies. November 2019. Link: <https://tech.sme.sk/c/22215491/biologicka-geny-obezity-existuju-skumame-ich-na-vinnych-muskach.html>

Member of the panel discussion *Moja kariérna cesta* (My career journey) at the workshop for PhD students and young researchers *Našartuj svoju kariéru vo vede* (Initiate your career in science), organized by Euraxess, Slovak Academy of Sciences, Science Park of Comenius University in Bratislava and SAIA). October 2019.

Interview article for *Hospodárske noviny*, one of the most widely read mainstream broadsheets in Slovakia. October 2019. Topic: Obesity research in the fruit flies. Link: <https://science.hnonline.sk/biologia-a-chemia/2037658-geneticka-ktora-skuma-sucasny-postrach-ludstva-vieme-stvorit-obezne-musky>

### Recent Media Coverage

<https://science.hnonline.sk/biologia-a-chemia/2016994-vyskum-obezity-na-vinnych-muskach-a-vplyv-probiotik-na-crevnu-mikrofluoru-ocenili-slovenske-vedkyne>

<https://www.startitup.sk/vedkyňa-martina-galikova-postavenie-zien-vo-vede-sa-jednoznacne-zlepsuje/>

<https://vedanadosah.cvtisr.sk/projekt-loreal-unesco-pre-zeny-vo-vede-ocenil-dve-slovenske-vedkyne>

[vyskumnicky](#)

### Teaching

Teaching part of the ‘Invertebrate Biomodels course’, LV500 130, at the VetmedUni Vienna, Austria. Lecture: *Drosophila* functional genetics. Seminar: How to design a *Drosophila* genetic experiment. 01/2012 (with T. Flatt and A. Betancourt) and 01/2013 (with A. Betancourt and J. Blanco)

### Supervision of Students (full supervision & design of their research projects)

Diana Knoblochová (Bc student), Project: Metabolic programming of adult traits by larval diet of *Drosophila*. Comenius University, Bratislava, Slovakia. 2019-2020. Thesis to be defended in 2020.

Natália Ušáková (Bc student), Project: Hormonal control of thirst and hunger in *Drosophila*. Comenius University, Bratislava, Slovakia. 2019-2020. Thesis to be defended in 2020.

Judith Münch (internship), Project: Metabolic roles of phospholipase CG8552. Max Planck Institute for Biophysical Chemistry. Göttingen, Germany. 09/2015.

Ewa Kusber (Erasmus student), Project: Biological roles of phospholipase CG8552. Max Planck Institute for Biophysical Chemistry, Göttingen, Germany. 05-07/2014.

Pia Hager (high school student), Project: Nutritional shortage triggers destruction of egg chambers at mid-oogenesis via steroid signaling acting in columnar follicle cells. Vetmeduni Vienna, Austria. 09/2012.

Roman Maresch (Bc student), Project Work in Biomedicine & Biotechnology: Insulin signaling in the *Drosophila* ovary. Vetmeduni Vienna, Austria. 09/2011-01/2012.

Manuel Miller (Bc student), Project Work in Biomedicine & Biotechnology: Effect of different EcR isoforms on frequency of programmed cell death at mid-oogenesis. Vetmeduni Vienna, Austria. 2011. Project Work in Biomedicine & Biotechnology: The effect of overexpression of apoptotic genes on germline proliferation in *Drosophila*. Vetmeduni Vienna, Austria. 10-11/2010.

### Co-Supervision of Undergraduate Students

Julia Steger (02-06/2010)  
Leo Edlinger (12/2010-11/2011)  
Jaqueline Kopp (02/2011)  
Bianca Neumeister (02/2011)  
(all at VetmedUni Vienna, Austria)

### Co-Supervision of Research Assistants / Technicians

Jana Heidemann, Max Planck Institute for Biophysical Chemistry. Göttingen, Germany. 2014-2016  
Anna Schönauer, VetmedUni Vienna, Austria. 2011

### Research skills

**Molecular biology:** DNA / RNA / protein extraction, agarose and polyacrylamide gel

electrophoresis, PCR, qRT-PCR, gene cloning, preparation of ISH robes, preparation of constructs for CRISPR-CAS9 assisted mutagenesis, etc.

***Drosophila* genetics:** generation of transgenic flies, UAS-GAL4, TARGET, GeneSwitch, flp/FRT, MARCM, CRISPR-CAS9 assisted mutagenesis, outcrossing of transgenic constructs / mutations into different genetic backgrounds, establishment of isogenic lines, genetic screens, etc.

**Biochemistry:** lipid, protein, glycogen, glucose and trehalose measurements by colorimetric assays, lipid determinations by vanillin assay, ATP levels determination, Western blotting, ELISA, etc.

**Physiology / metabolic assays:** metabolic rate determination by respirometry, food intake determination by capillary feeding and blue dye intake assays, analyses of the metabolic effects of different nutritional regimes, stress survival assays (starvation, heat and paraquat resistance), locomotor activity assays, climbing assay, etc.

**Life history trait assays:** lifespan and fecundity assays, body size measurements, cell size / cell number determination, heat shock resistance, chill coma recovery, etc.

**Histology:** tissue dissections, in vitro incubation of tissues for hormone secretion into the media, antibody stainings, in situ hybridizations, X-Gal stainings, BrdU assay, TUNEL assay, Lysotracker and Mitotracker stainings, Nile red and Oil Red O stainings, preparation of samples for scanning and transmission electron microscopy, etc.

**Microscopy:** bright field, epifluorescent, confocal

**Statistics:** advanced statistics, statistical work in PAST

**Population genetics and evolutionary biology** (intermediate theoretical skills, practical skills with collection and work with wild-type strains of *D. melanogaster*, analysis of clinal variation in morphological traits, etc.)

### **Project managements & Leadership skills**

Experience in leading projects from the research planning to successful publication. The leading (the first or corresponding) author on 9 publications, senior author on 3 publications.

Mentoring and supervision of students from various backgrounds (13 students from four countries).

Broad international experience (10 years of research work abroad, experience from four countries) and extensive network of international collaborators.

Successful funding application (69 600 EUR for current project on obesity)

Experience in outreach activities.

### **Language Skills**

**Slovak:** native language

**English:** proficient (C2)

**German:** advanced (C1)

**Swedish:** beginner