

# Philipp Velicky

## Details

Date of Birth: 10/03/1985  
 Nationality: Austria  
 Address: Goldschlagstraße 82/38, Vienna, Austria  
 Contact: philipp.velicky@meduniwien.ac.at, +4369911001495  
 ORCID: 0000-0002-2340-7431



## Degrees

06/2016	Doctor of Philosophy (PhD.)
04/2011	Magister rer. nat. (equivalent MSc.) in Molecular Biology
11/2010	Bachelor of Science in Biology

## Academic training & positions

02/2023 – current	<b>Postdoc</b> , Medical University of Vienna, AUT Head of Core Facility Imaging
01/2018 – 01/2023	<b>Postdoc</b> , Institute of Science and Technology Austria, AUT Johann Danzl Group, Information & System Sciences <i>Developing novel techniques for volumetric, super-resolution light microscopy imaging</i>  <i>Trusted Advisor of the Conflict Management System at ISTA</i>
07/2016 – 08/2017	<b>Wrap-up Postdoc</b> , Medical University of Vienna, AUT Bernd Jilma Group, Department of Clinical Pharmacology <i>Experimental implementation and coordination of a collaborative, international project to assess the invasive trophoblast-mediated enzyme diamine oxidase as biomarker for preeclampsia</i>
06/2011 – 06/2016	<b>PhD Thesis</b> , Medical University of Vienna, AUT Martin Knöfler Group, Department of Obstetrics & Gynaecology <i>Investigation of the role of canonical Notch-signalling in human invasive trophoblast development and function as well as the role of acquired polyploidy in human trophoblast senescence</i>
02/2010 – 10/2010	<b>Master's Thesis</b> , University of Oxford, GBR Shona Murphy Group, Sir William Dunn School of Pathology <i>Transcriptional elongation of human histone genes</i>
07/2009 – 08/2009	<b>Rotation</b> , Medical University of Vienna, AUT Maria Sibilgia Group, Institute for Cancer research Molecular tumor biology
04/2009 – 06/2009	<b>Rotation</b> , NYU Langone Medical Center, NY, USA Sandra Demaria Group, Department of Pathology <i>Cancer immunology</i>

## Fields of active research

---

Advanced Light Microscopy, Bioimage analysis, Neuroscience, Molecular Biology, Placenta Research, Pregnancy Disorders

## Presentations & Conferences

---

12/2024	Super-Resolution Summit, Basel, CH (invited talk)
06/2024	23 <sup>rd</sup> ELMI Meeting, Genoa, IT (invited talk)
06/2023	22 <sup>nd</sup> ELMI Meeting, Noordwijkerhout, NLD (invited talk)
07/2022	Nature Conference - Bioengineering, Munich, GER (invited talk)
02/2022	NYU Tech4Health seminar, NY, USA (invited talk)
09/2017	IST Austria, AUT (invited talk)
09/2016	22 <sup>nd</sup> IFPA Meeting, Portland, OR, USA (poster award)
09/2014	20 <sup>th</sup> IFPA Meeting, Paris, FRA (poster)
09/2013	5 <sup>th</sup> annual OEGMBT Meeting, Innsbruck, AUT (poster)
09/2012	18 <sup>th</sup> IFPA Meeting, Hiroshima, JPN (invited talk)

## Academic Awards

---

2024	Significant Milestone Award of the 2024 Exner Lectures
2022	Best Poster Award, Nature Conference – Bioengineering, Munich
2016	Elsevier Poster Award, IFPA Meeting 2016, Portland
2012	Y.W. Loke Award of the International Federation of Placenta Associations

## Grants and Fellowships

---

2023	FFG Infrastructure Grant "HigWay2Cell"
2022	Nature Conference travel grant
2018	<i>Erwin Schrödinger Fellowship</i> of the FWF (J-4189)
2017	<i>Research scholarship</i> of the Medical University of Science
2014	OEGMBT travel grant
2013	OEGMBT travel grant
2010	<i>Short-term grant abroad</i> (KWA) of the University of Vienna
2010	<i>Förderstipendium</i> of the University of Vienna

## Supervision & Teaching

---

Supervision of 6 international students (*interns, PhD candidates*)  
 Teaching assistant (*practical course in biochemistry and lectures "biology core course" and "presenting in science"*)

## Further training

---

2024	Leadership Curriculum (Medical University of Vienna)
2021	Future Wings Challenge (Workshop for Startup founders)
2020	Training <i>Trusted Advisor</i> (Conflict Management System at ISTA)
2019	Neubias/COST – Bioimage Processing & Analysis (Erasmus+)
2019	Teaching Didactics, IST Austria, Austria
2018	EMBL course – Super-resolution Microscopy (Erasmus+)

## Outreach activity

---

Science Ambassador (OeAD), Open Campus Day, Lange Nacht der Forschung

## Miscellaneous

---

Languages            German (first language)  
                          English (fluent)  
                          French (basics)

Peer-Reviewer        PLoS One, Placenta, International Journal of Molecular Sciences

Memberships        - Young Science Zentrum – Science Ambassador  
                          - Austrian Association of Molecular Life Science and  
                                  Biotechnology  
                          - Young Science Association of the Medical University of Vienna  
                          - The Oxford Union (2010)

## Media

“Die Presse” 2024:  
<https://www.diepresse.com/18703877/neue-lasertechnik-soll-besseres-verstaendnis-von-parkinson-und-alzheimer-bringen>

OE1 Radio 2023:  
<https://oe1.orf.at/programm/20230328/713210/Zusammenarbeit-Erfahrungen-Spenden>

Der Standard 2020:  
<https://www.derstandard.at/story/2000118264551/forscher-verbessern-lichtmikroskopie>

Ärztezeitung 2019:  
<https://www.aerztezeitung.at/archiv/oeaez-2019/oeaz-5-10032019/portraet-philipp-velicky.html>

[Der Standard 2018:  
https://www.derstandard.at/story/2000078533178/neuer-ansatz-zur-frueherkennung-einer-schwangerschaftsvergiftung](https://www.derstandard.at/story/2000078533178/neuer-ansatz-zur-frueherkennung-einer-schwangerschaftsvergiftung)

MedUni Wien Press Release 2018:  
<https://www.meduniwien.ac.at/web/ueber-uns/news/detailseite/2018/news-im-oktober-2018/bedeutung-von-zell-zyklus-und-zell-alterung-in-der-plazenta-entschluesselt/>

- Velicky P**, Miguel E, Michalska J, Wei D., Lin Z., Watson JF, Troidl J, Beyer J, Ben-Simon Y, Sommer C, Jahr W, Cenameri A, Broichhagen J, Grant SGN, Jonas P, Novarino G, Pfister H, Bickel B, Danzl JG. *Dense 4D nanoscale reconstruction of living brain tissue*. **Nature Methods** 2023. DOI: <https://doi.org/10.1038/s41592-023-01936-6>
- Michalska JM, Lyudchik J, **Velicky P**, Stefanickova H, Watsin JK, Cenameri A, Sommer C, Amber N, Venturino A, Roessler K, Czech T, Höftberger R, Siegert S, Novarino G, Jinas P, Danzl JG. *Imaging brain tissue architecture across millimeter to nanometer scales*. **Nature Biotechnology** 2023. <https://doi.org/10.1038/s41587-023-01911-8>
- Dunajova Z, Mateu BP, Radler P, Lim K, Brandis D, **Velicky P**, Danzl JG, Wong RW, Elgeti J, Hannezo E, Loose M. *Chiral and nematic phases of flexible active filaments*. **Nature Physics** 2023. <https://doi.org/10.1038/s41567-023-02218-w>
- Ben-Simon Y., Kaefer K., **Velicky P.**, Csicvari J., Danzl JG., Jonas P. (2022) *A direct projection from entorhinal layer 6b neurons to the hippocampus contributes to spatial coding and memory*. **Nature Communications**. doi: <https://doi.org/10.1038/s41467-022-32559-8>
- Eguchi K, **Velicky P**, Hollergschwandtner E, Itakura M, Fukazawa Y, Danzl JG, Shigemoto R. (2020) *Advantages of Acute Brain Slices Prepared at Physiological Temperature in the Characterization of Synaptic Functions*. **Front Cell Neurosci**;14:63. doi: 10.3389/fncel.2020.00063.
- Jahr W, **Velicky P**, Danzl JG. *Strategies to maximize performance in STimulated Emission Depletion (STED) nanoscopy of biological specimens*. **Methods**. (2019) Jul 22. pii: S1046-2023(18)30439-0. doi: 10.1016/j.ymeth.2019.07.019. Review. PMID: 31344404
- Velicky P**, Meinhardt G, Plessl K, Vondra S, Weiss T, Haslinger P, Lendl T, Aumayr K, Mairhofer M, Zhu X, Schutz B, Hannibal RL, Lindau R, Weil B, Ernerudh J, Neesen J, Egger G, Mikula M, Rohrl C, Urban AE, Baker J, Knofler M, Pollheimer J. (2018) *Genome amplification and cellular senescence are hallmarks of human placenta development*. **PLoS Genetics**. doi: 10.1371/journal.pgen.1007698
- Velicky P**, Windsperger K, Petroczi K, Pils S, Reiter B, Weiss T, Ristl R, Szollosi H, Dekan S, Fiala C, Cantonwine DE, McElrath TF, Jilma B, Knofler M, Boehm T, Pollheimer J. (2018) *Pregnancy-associated diamine oxidase originates from extravillous trophoblasts and is decreased in early-onset preeclampsia*. **Scientific Reports**. doi:10.1038/s41598-018-24652-0
- Meyer N, Woidacki K, Knofler M, Meinhardt G, Nowak D, **Velicky P**, Pollheimer J, Zenclussen AC. *Chymase-producing cells of the innate immune system are required for decidual vascular remodeling and fetal growth*. **Sci Rep**. 2017 Mar 22;7:45106. doi: 10.1038/srep45106
- Majali-Martinez A, **Velicky P**, Pollheimer J, Knofler M, Yung HW, Burton GJ, Tabrizi- Wizsy NG, Lang U, Hiden U, Desoye G, Dieber-Rotheneder M. (2017) *Endothelin-1 down-regulates matrix metalloproteinase 14 and 15 expression in human first trimester trophoblasts via endothelin receptor type B*. **Hum. Reprod**. doi: <https://doi.org/10.1093/humrep/dew295>
- Meinhardt G, Saleh L, Otti GR, Haider S, **Velicky P**, Fiala C, Pollheimer J, Knofler M. (2016) *Wingless ligand 5a is a critical regulator of placental growth and survival*. **Sci Rep**. 2016 Jun 17;6:28127. doi: 10.1038/srep28127
- Velicky P**, Knofler M, Pollheimer J. (2015) *Function and control of human invasive trophoblast subtypes: intrinsic vs. maternal control*. **Cell Adh Migr**. doi:10.1080/19336918.2015.1089376
- Otti GR, Saleh L, **Velicky P**, Fiala C, Pollheimer J, Knofler M. (2014) *Notch2 controls prolactin and insulin-like growth factor binding protein-1 expression in decidualizing human stromal cells of early pregnancy*. **PLoS One**. doi: 10.1371/journal.pone.0112723
- Velicky P**, Haider S, Otti GR, Fiala C, Pollheimer J, Knofler M. (2014) *Notch dependent RBPJk inhibits proliferation of human cytotrophoblasts and their differentiation into extravillous trophoblasts*. **Mol Hum Repro**. doi: 10.1093/molehr/gau038
- Biadasiewicz K, Fock V, Dekan S, Proestling K, **Velicky P**, Haider S, Knofler M, Frohlich C, Pollheimer J. (2014) *Extravillous trophoblast-associated ADAM12 exerts pro-invasive properties, including induction of integrin beta 1-mediated cellular spreading*. **Biol Reprod**. doi: 10.1095/biolreprod.113.115279
- Haider S, Meinhardt G, **Velicky P**, Otti GR, Whitley G, Fiala C, Pollheimer J, Knofler M. (2014) *Notch signaling plays a critical role in motility and differentiation of human first-trimester cytotrophoblasts*. **Endocrinology**. doi: 10.1210/en.2013-1455
- Schwenke M, Knofler M, **Velicky P**, Weimar CH, Kruse M, Samalecos A, Wolf A, Macklon NS, Bamberger AM, Gellersen B. (2013) *Control of human endometrial stromal cell motility by PDGF-BB, HB-EGF and trophoblast-secreted factors*. **PLoS One**. doi: 10.1371/journal.pone.0054336