Petronel Tuluc – CV

Assoc. Prof., Priv.-Doz. M.Sc, Ph.D.

Contact

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Personal data

Date of Birth:	January 8, 1977
Place of Birth:	Iași, Romania
Nationality:	Romanian

Education

2018	"Venia docendi" (Habilitation) in Pharmacology.
2004 - 2008	Doctoral studies (PhD) in the laboratory of Dr. Bernhard E. Flucher (University of Innsbruck) studying Voltage Gated Calcium Channels in health and disease.
2001 - 2003	Master of Science in Medical physics – Biophysics at Alexandru I. Cuza University of Iași, Romania.
2002 - 2002	Erasmus scholarship at Institute Européen des Membrane, Montpellier, France studying Plasma Enhanced Chemical Vapour Deposition techniques.
1997 - 2001	Bachlor in Physics/Biophysics at Alexandru I. Cuza University of Iași, Romania.

Academic career history

2018-presently	Associate Professor, Department of Pharmacology and Toxicology, University of Innsbruck.
2012 - 2018	Assistant Professor, Department of Pharmacology and Toxicology, University of Innsbruck.
2010 - 2012	Univ. Assistant (postdoc), Department of Pharmacology and Toxicology, University of Innsbruck.
2008 - 2010	Principal investigator in MUI research grant MFI 2007-417 (Selbstantrag/Fellowship), Medical University Innsbruck.

Main research areas

- Role of Ca_V calcium channels in endocrine cells hormone release. Molecular mechanism of insulin release in health and Diabetes Mellitus.
- Structure and function of Ca_V channels and their voltage sensing mechanism.
- Computer modelling of membrane excitability.
- Skeletal and cardiac muscle excitation-contraction coupling.

Past research funding

2023-2027 (€1.441.421)	FWF doc.funds: CavX PhD programm – Calcium channels in excitable cells. (**Speaker**)
2023-2027 (€191.456)	University of Innbruck Co-Funding for the CavX PhD programm – Calcium channels in excitable cells. (**Speaker**)
2022-2026 (€408.604)	FWF: Role of $Ca_V1.3$ Ca^{2+} channel in pancreatic β-cell function. (**PI**)
2019-2022 (€405.026)	FWF: Mechanisms responsible for sex difference in insulin release. (**PI**)
2018-2022 (€1.109.130)	FWF doc.funs: CavX PhD programm – Calcium channels in excitable cells.(**Co-PI**)
2014-2016 (€19.804)	Forschungsförderungsmitteln der Nachwuchsförderung 2014 der Universität Innsbruck " Role of $Ca_V1.3$ calcium channel modulation in pancreatic hormones. (**PI**)
2012-2014 (€10.000)	Jubiläumsfonds der Universität Innsbruck " Role of $Ca_V1.3$ calcium channel in pancreatic β-vell survival and insulin release". (**PI**)
2011-2015 (€399.913)	FWF: "Expression and function of the skeletal muscle calcium channel splice variant $Ca_V1.1$-DE29". (**Co-PI** with B.E. Flucher)
2008-2010 (€125.923)	Medical University Innsbruck research grant MFI 2007-417, "The role of calcium channel $\alpha_2\delta$-1 subunit in native cardiac myocytes". **(PI**)

Total =3.002.147€; Own part = 1.657.211€.

Peer review activities

Ad hoc referee for: Diabetes, Nature Communications, Channels, Biophysical Journal, European Journal of Neuroscience, European Journal of Physiology, Translational Psychiatry, PLOS one, Scientific Reports, Cell Reports, J. Gen. Physiology, Toxicology in Vitro, Hungarian Scientific Research Fund, Medical Research Fund-UK, Marsden Fund-NZ.

Publications

40 (32 original, 8 reviews/book chapters). Citations 2268, h-index=25, i10 index 32. Full publication list here.

Most relevant publications:

1 Jacobo-Piqueras, N., Theiner, T., Geisler, S. M. & **Tuluc, P**. Molecular mechanism responsible for sex differences in electrical activity of mouse pancreatic beta cells. ***JCI Insight*** 9, doi:10.1172/jci.insight.171609 (**2024**) https://www.ncbi.nlm.nih.gov/pubmed/38358819

2 Ortner, N. J., Sah, A., Paradiso, E., Shin, J., Stojanovic, S., Hammer, N., Haritonova, M., Hofer, N. T., Marcantoni, A., Guarina, L., **Tuluc, P.**, Theiner, T., Pitterl, F., Ebner, K., Oberacher, H., Carbone, E., Stefanova, N., Ferraguti, F., Singewald, N., Roeper, J. & Striessnig, J. The human channel gating-modifying A749G CACNA1D (Cav1.3) variant induces a neurodevelopmental syndrome-like phenotype in mice. ***JCI Insight*** 8, doi:10.1172/jci.insight.162100 (**2023**) https://www.ncbi.nlm.nih.gov/pubmed/37698939

3 Fernandez-Quintero, M. L., El Ghaleb, Y., **Tuluc, P.**, Campiglio, M., Liedl, K. R. & Flucher, B. E. Structural determinants of voltage-gating properties in calcium channels. ***Elife*** 10, doi:10.7554/eLife.64087 (**2021**) https://www.ncbi.nlm.nih.gov/pubmed/33783354

4 El Ghaleb, Y., Schneeberger, P. E., Fernandez-Quintero, M. L., Geisler, S. M., Pelizzari, S., Polstra, A. M., van Hagen, J. M., Denecke, J., Campiglio, M., Liedl, K. R., Stevens, C. A., Person, R. E., Rentas, S., Marsh, E. D., Conlin, L. K., **Tuluc, P.**, Kutsche, K. & Flucher, B. E. CACNA1I gain-of-function mutations differentially affect channel gating and cause neurodevelopmental disorders. ***Brain*** 144, 2092-2106, doi:10.1093/brain/awab101 (**2021**) https://www.ncbi.nlm.nih.gov/pubmed/33704440

5 Hofer, N. T., **Tuluc, P.**, Ortner, N. J., Nikonishyna, Y. V., Fernandes-Quintero, M. L., Liedl, K. R., Flucher, B. E., Cox, H. & Striessnig, J. Biophysical classification of a CACNA1D de novo mutation as a high-risk mutation for a severe neurodevelopmental disorder. ***Mol Autism*** 11, 4, doi:10.1186/s13229-019-0310-4 (**2020**) https://www.ncbi.nlm.nih.gov/pubmed/31921405

6 Monteleone, S., Lieb, A., Pinggera, A., Negro, G., Fuchs, J. E., Hofer, F., Striessnig, J., **Tuluc, P.** & Liedl, K. R. Mechanisms Responsible for omega-Pore Currents in Ca(v) Calcium Channel Voltage-Sensing Domains.

Biophys J 113, 1485-1495, doi:10.1016/j.bpj.2017.08.010 (**2017**) https://www.ncbi.nlm.nih.gov/pubmed/28978442

7 Mastrolia, V., Flucher, S. M., Obermair, G. J., Drach, M., Hofer, H., Renstrom, E., Schwartz, A., Striessnig, J., Flucher, B. E. & **Tuluc, P**. Loss of alpha(2)delta-1 Calcium Channel Subunit Function Increases the Susceptibility for Diabetes. ***Diabetes*** 66, 897-907, doi:10.2337/db16-0336 (**2017**) https://www.ncbi.nlm.nih.gov/pubmed/28115397

8 **Tuluc, P.**, Yarov-Yarovoy, V., Benedetti, B. & Flucher, B. E. Molecular Interactions in the Voltage Sensor Controlling Gating Properties of CaV Calcium Channels. ***Structure*** 24, 261-271, doi:10.1016/j.str.2015.11.011 (**2016**) https://www.ncbi.nlm.nih.gov/pubmed/26749449

9 Ortner, N. J., Bock, G., Vandael, D. H., Mauersberger, R., Draheim, H. J., Gust, R., Carbone, E., **Tuluc, P.** & Striessnig, J. Pyrimidine-2,4,6-triones are a new class of voltage-gated L-type Ca2+ channel activators. ***Nat Commun*** 5, 3897, doi:10.1038/ncomms4897 (**2014**) https://www.ncbi.nlm.nih.gov/pubmed/24941892

10 Azizan, E. A., Poulsen, H., **Tuluc, P.**, Zhou, J., Clausen, M. V., Lieb, A., Maniero, C., Garg, S., Bochukova, E. G., Zhao, W., Shaikh, L. H., Brighton, C. A., Teo, A. E., Davenport, A. P., Dekkers, T., Tops, B., Kusters, B., Ceral, J., Yeo, G. S., Neogi, S. G., McFarlane, I., Rosenfeld, N., Marass, F., Hadfield, J., Margas, W., Chaggar, K., Solar, M., Deinum, J., Dolphin, A. C., Farooqi, I. S., Striessnig, J., Nissen, P. & Brown, M. J. Somatic mutations in ATP1A1 and CACNA1D underlie a common subtype of adrenal hypertension. ***Nat Genet*** 45, 1055-1060, doi:10.1038/ng.2716 (**2013**) https://www.ncbi.nlm.nih.gov/pubmed/23913004

11 **Tuluc, P.**, Molenda, N., Schlick, B., Obermair, G. J., Flucher, B. E. & Jurkat-Rott, K. A CaV1.1 Ca2+ channel splice variant with high conductance and voltage-sensitivity alters EC coupling in developing skeletal muscle. ***Biophys J*** 96, 35-44, doi:10.1016/j.bpj.2008.09.027 (**2009**) https://www.ncbi.nlm.nih.gov/pubmed/19134469

12 **Tuluc, P.**, Kern, G., Obermair, G. J. & Flucher, B. E. Computer modeling of siRNA knockdown effects indicates an essential role of the Ca2+ channel alpha2delta-1 subunit in cardiac excitation-contraction coupling. ***Proc Natl Acad Sci U S A*** 104, 11091-11096, doi:10.1073/pnas.0700577104 (**2007**) https://www.ncbi.nlm.nih.gov/pubmed/17563358

10 most important scientific/scholarly research achievements apart from academic publications

1. 2001: Erasmus Scholarsip – Montpellier, France.
2. 2007: Molecular Cell Biology and Oncology doctoral program award fellowship.
3. 2008: Research Fellowship of the Medical University of Innsbruck.
4. 2010: Early investigator award from The American Biophysical Society and the Biophysical Society of China.
5. 2013: International calcium channel symposium, Symposium Speaker (March 24-29, Krabi Thailand).
6. 2018: 3rd European Calcium Channel Conference, Speaker, May 9-12, Alpbach, Austria.
7. 2021: Austrian Neuroscience association meeting, Symposium Speaker, September 28-20, Salzburg, Austria.
8. 2022: 21st International Symposium on Chromaffin cell Biology, Symposium Speaker (7-12 July, Hamburg, Germany).
9. 2023: Speaker of the FWF-funded Ca$_V$*X* PhD program.
10. 2024: International calcium channel meeting, Symposium Speaker (February 25-March 1, Boracay Philippines).

Press releases

1. 2024: Diabetes und Geschlecht DE/EN
2. 2024: Collaboratively exploring vital calcium channels DE/EN
3. 2021: Kalziumkanal: Krankheitsgen für neuronale Entwicklungsstörung EN/DE
4. 2018: Kanalarbeiter im Labor EN/DE

Memberships:

American Biophysical Society

European Association for the Stufy of Diabetes

Austrian Biophysical Society

Center for Molecular Biosciences Innsbruck