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Research

- 2021 – present Professor of Molecular Biology, Max Perutz Labs, Medical University of Vienna
- 2017 – 2021 Associate Professor, Max Perutz Labs, Medical University of Vienna
- 2012 – 2017 Junior Group Leader, Max Perutz Labs, Medical University of Vienna
- 2005 – 2011 Postdoctoral Fellow, National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK/NIH)
- Advisor: Dr. James H. Hurley
- 2001 – 2005 PhD student, MRC Laboratory of Molecular Biology (LMB), Cambridge, U.K.
- Advisor: Dr. Jan Löwe

Education

- 2001 – 2005 PhD, University of Cambridge. Advisor: Jan Löwe, Structural Studies Division
- 1998 – 2001 BSc (Hons) Biochemistry with Medical Biochemistry, University of Bristol, U.K. (First Class Honours)

Funding

- 2025 – 2028 Max Perutz PhD Fellowship to M. Otto.
- 2024 – 2027 Max Perutz PhD Fellowship to L. Piëch.
- 2024 – 2028 Austrian Research Fund (FWF) Project (P 36724) 'Microtubule-associated serine/threonine kinases in health and disease.'
- 2023 – 2027 Austrian Research Fund (FWF) Project (P 36212)
- 'Phosphoinositide-dependent kinase 1: master growth regulator.'
- 2020 – 2023 Austrian Research Fund (FWF) Project (P 33066)

	'PI3K signaling – navigating upstream and downstream of Akt.'
2019 – 2021	Austrian Academy of Sciences DOC PhD Fellowship to K. Siess.
2017 – 2020	Austrian Research Fund (FWF) Project (P 30584) 'Structure, Function, and Regulation of Protein Kinase D.'
2017 – 2020	Austrian Research Fund (FWF) Hertha Firnberg Postdoctoral Fellowship to Dr. Linda Trübestein (T 915).
2017 – 2020	Austrian Research Fund (FWF) Doctoral Program "Signaling Mechanisms in Cellular Homeostasis".
2015 – 2018	Austrian Research Fund (FWF) Project (P 28135) 'Lipid-activated kinases in cell shape and motility.'
2017 – 2017	University of Vienna Thesis Completion Fellowship to I. Lučić.
2015 – 2017	Boehringer Ingelheim Fonds (BIF) PhD Fellowship to D. Elsner.
2014 – 2016	Austrian Academy of Sciences DOC PhD Fellowship to F. von Raußendorf.

Honours and Awards

2016	F1000Prime Faculty Member: Cell Signaling & Trafficking Structures Section
2006-2012	NIDDK Nancy Nossal Fellowship (National Institutes of Health (NIH), U.S.A.)
2006-2008	EMBO Long Term Fellowship

Invited Talks

2027	FASEB conference: 'Protein Phosphorylation', location t.b.d. (U.S.A).
2026	EMBO Workshop 'Pseudoenzymes: New Frontiers in Protein Function and Regulation', Bordeaux, France.
2026	ASBMB Meeting: 'Inside the Box – Single Molecule Reaction Chambers' (invited short talk), Washington DC, U.S.A.
2025	EMBO Workshop 'Phosphatases: from Basic Research to Translation', Würzburg, Germany.
2025	Institute of Organic Chemistry and Biochemistry, Prague, Czech Republic.
2024	Molecular, Cell and Developmental Biology (MCDB), University of Dundee, U.K.
2024	Johns Hopkins University, Baltimore, USA.
2023	University of Sofia, Sofia, Bulgaria.
2023	First Focused Meeting on Molecular Mechanisms of PDK1/Akt. Barcelona, Spain.
2022	88 th Harden Conference: 'Beyond catalysis: kinases and pseudokinases 2022', Chesford Grange, U.K.
2022	EMBO Workshop: Cancer Cell Signaling, Cavtat, Croatia

2022	Max Perutz Exhibition: Breathing at High Altitude. 'Max Perutz: a not so quiet life.'
2022	Max Perutz Exhibition: Breathing at High Altitude. 'Standing on the shoulders of giants – the legacy of Max Perutz.'
2022	FASEB conference 'Protein Kinases and Protein Phosphorylation', Nova Scotia, CA
2021	OEGMBT 13 th Annual Meeting: 'From Molecular Machines to Translational Medicine'
2019	FASEB conference 'Protein Kinases and Protein Phosphorylation', Palm Springs, USA
2018	International Workshop on Biological Membranes, Helsinki, Finland
2018	FASEB conference 'Phospholipids: Dynamic Lipid Signaling in Health and Disease', Steamboat Springs, CO USA
2017	FASEB conference 'Protein Kinases and Protein Phosphorylation', Cambridge, UK
2017	Keystone Symposium 'PI3K Pathways in Immunology, Growth Disorders and Cancer', Santa Fe, New Mexico, USA
2017	Biomolecules and Nanostructures 6, Podlesice, Poland
2015	FASEB conference 'Protein Kinases and Protein Phosphorylation', Itasca, IL USA

Teaching/Mentoring Experience

2021 –	MSc Molecular Precision Medicine
2012 –	Supervision of eight Masters students and eleven PhD students
2017 –	Biophysical Chemistry of Macromolecules
2015 –	Lecture Series: Advanced Biophysical Methods
2014 –	Lecture Series: Methods in Molecular Biology and Biochemistry
2013 –	Practical course: Molecular Biophysics

Commissions of Trust

2025 – 2030	Editorial Board member, Journal of Biological Chemistry
2021 – present	Curriculum Director, MSc Molecular Precision Medicine (joint programme of Medical University of Vienna and University of Vienna) https://www.meduniwien.ac.at/web/en/studies-further-education/the-molecular-precision-medicine-masters-programme/
2020 – present	Deputy Head, Max Perutz Labs Medical University of Vienna
2020 – present	Deputy Doctoral Studies Programme Leader, Vienna BioCenter PhD Programme
2018 – present	Tenure Track hiring committees, University of Vienna/Medical University of Vienna
2018	Vienna Biocenter PhD Awards committee
2016 – present	Mass Spectrometry User Committee, Max Perutz Labs

Peer Review Activities

F1000	Faculty Opinions Faculty Member: Cell Signaling & Trafficking Structures Section
Journals	Acta Cryst D; Acta Cryst F; Biochemical Journal; Biochemistry; Cell; Cell Reports; Chemical Reviews; Current Opinion in Structural Biology; eLife; Journal of Structural Biology; Nature Communications; Nature Structural and Molecular Biology; PLoS Biology; PLoS Computational Biology; PNAS; Science; Science Signaling; Scientific Reports; Structure.
Grant review	Agence Nationale de la Recherche (France).

Publications

- Husremović, T., Meier, V., Piëch, L., Siess, K.M., Antonioli, S., Grishkovskaya, I., Kircheva, N., Angelova, S., Wenzl, K., Brandstätter, A., Veis, J., Miočić-Stošić, F., Anrather, D., Hartl, M., Truebestein, L., Cerron-Alvan, L.M., Leeb, M., Žagrović, B., Hann, S., Bock, C., Ogris, E., Dudev, T., Irwin, N.A.T., Haselbach, D., **Leonard, T.A.** (2025) PHLPP2 is a pseudophosphatase that lost activity in the metazoan ancestor. *Proceedings of the National Academy of Sciences* Apr 8;122(14):e2417218122. doi: 10.1073/pnas.2417218122.
- Reinhardt, R. and **Leonard, T.A.** (2023) A critical evaluation of protein kinase regulation by activation loop autophosphorylation. *eLife* Jul 20;12:e88210. doi: 10.7554/eLife.88210.
- Leonard, T.A.**, Loose, M. and Martens, S. (2023) The membrane surface as a platform that organizes cellular and biochemical processes. *Dev Cell* Jun 28;S1534-5807(23)00274-5. doi: 10.1016/j.devcel.2023.06.001.
- Reinhardt, R., Hirzel, K., Link, G., Eisler, S.A., Haegeler, T., Parson, M.A.H., Burke, J.E., Hausser, A., **Leonard, T.A.** (2023) PKD autoinhibition in *trans* regulates activation loop autophosphorylation in *cis*. *Proceedings of the National Academy of Sciences* Feb 14;120(7):e2212909120. (doi: 10.1073/pnas.2212909120).
- Truebestein, L., Antonioli, S., Waltenberger, E., Gehin, C., Gavin, A., **Leonard, T.A.** (2023) Structure and regulation of the myotonic dystrophy kinase-related Cdc42-binding kinase. *Structure* Feb 23:S0969-2126(23)00036-9. (doi: 10.1016/j.str.2023.02.002).
- Thibodeau, M.C., Harris, N.J., Jenkins, M.L., Parson, M.A.H., Evans, J.T., Scott, M.K., Shaw, A.L., Pokorny, D., **Leonard, T.A.**, Burke J.E. (2023) Molecular basis for the recruitment of the Rab effector protein WDR44 by the GTPase Rab11. *J Biol Chem.* Jan;299(1):102764. (doi: 10.1016/j.jbc.2022.102764).
- Shaw, A.L., Parson, M.A.H., Truebestein, L., Jenkins, M.L., **Leonard, T.A.**, Burke, J.E. (2023) ATP-competitive and allosteric inhibitors induce differential conformational changes at the

autoinhibitory interface of Akt. *Structure* Mar 2;31(3):343-354.e3. (doi: 10.1016/j.str.2023.01.007).

- Levina, A., Fleming, K.D., Burke, J.E.B., **Leonard, T.A.** (2022) Activation of the essential kinase PDK1 by phosphoinositide-driven trans-autophosphorylation. *Nature Communications*. Apr 6;13(1):1874. doi: 10.1038/s41467-022-29368-4.
- Truebestein, L., Horneegger, H., Anrather, D., Hartl, M., Fleming, K.D., Stariha, J.T.B., Pardon, E., Steyaert, J., Burke, J.E., and **Leonard, T.A.** (2021) Structure of autoinhibited Akt1 reveals mechanism of PIP₃-mediated activation. *Proceedings of the National Academy of Sciences*. Aug 17;118(33):e2101496118. (doi: 10.1073/pnas.2101496118).
- Pokorny, D., Truebestein, L., Fleming, K.D., Burke, J.E., and **Leonard, T.A.** (2021) *In vitro* reconstitution of Sgk3 activation by phosphatidylinositol 3-phosphate. *J Biol Chem*. Jun 25;100919. (doi: 10.1016/j.jbc.2021.100919).
- Reinhardt, R., Truebestein, L., Schmidt, H.A., and **Leonard, T.A.** (2020) It takes two to tango: activation of protein kinase D by dimerization. *Bioessays*. Jan 29:e1900222. (doi: 10.1002/bies.201900222).
- Elsner, D.J., Siess, K.M., Gossenreiter, T., Hartl, M., **Leonard, T.A.** (2019) A ubiquitin-like domain controls protein kinase D dimerization and activation by trans-autophosphorylation. *J Biol Chem*. Aug 12. pii: jbc.RA119.008713. (doi: 10.1074/jbc.RA119.008713).
- Siess, K.M. and **Leonard, T.A.** (2019) Lipid-dependent Akt-ivity: where, when, and how. *Biochem. Soc. Trans.* (doi: 10.1042/BST20190013).
- Tripathy, R., Leca, I., van Dijk, T., Weiss, J., van Bon, B.W., Sergaki, M.C., Gstrein, T., Breuss, M., Tian, G., Bahi-Buisson, N., Paciorkowski, A.R., Pagnamenta, A.T., Wenninger-Weinzierl, A., Martinez-Reza, M.F., Landler, L., Lise, S., Taylor, J.C., Terrone, G., Vitiello, G., Del Giudice, E., Brunetti-Pierri, N., D'Amico, A., Reymond, A., Voisin, N., Bernstein, J.A., Farrelly, E., Kini, U., **Leonard, T.A.**, Valence, S., Burglen, L., Armstrong, L., Hiatt, S.M., Cooper, G.M., Aldinger, K.A., Dobyns, W.B., Mirzaa, G., Pierson, T.M., Baas, F., Chelly, J., Cowan, N.J., Keays, D.A. (2018) Mutations in MAST1 Cause Mega-Corpus-Callosum Syndrome with Cerebellar Hypoplasia and Cortical Malformations. *Neuron* pii: S0896-6273(18)30952-8. (doi: 10.1016/j.neuron.2018.10.044).
- Leonard, T.A.** (2018) Reply to Agarwal: Activity against nuclear substrates is not necessarily mediated by nuclear Akt. *Proceedings of the National Academy of Sciences* 115(27):E6101-E6102. (doi: 10.1073/pnas.1808882115).
- Lučić, I., Rathinaswamy, M.K., Truebestein, L., Hamelin, D., Burke, J.E., **Leonard, T.A.** (2018) Conformational sampling of membranes by Akt controls its activation and inactivation. *Proceedings of the National Academy of Sciences* 115(17):E3940-E3949. (doi: 10.1073/pnas.1716109115).

von Raueßendorf, F., de Ruiter, A., **Leonard, T.A.** (2017) A switch in nucleotide affinity governs activation of the Src and Tec family kinases. *Scientific Reports* 7(1):17405 (doi: 10.1038/s41598-017-17703-5).

¹Ebner, M., ¹Lučić, I., ***Leonard, T.A.**, *Yudushkin, I. (2017) PI(3,4,5)P₃ restricts Akt activity to cellular membranes. *Molecular Cell* 65(3):416-431 (doi: 10.1016/j.molcel.2016.12.028).

¹Co-first authors; *Co-corresponding authors.

Truebestein, L., **Leonard, T.A.** (2016) Coiled-coils: The long and short of it. *BioEssays* 38:903-916 (doi: 10.1002/bies.201600062). Review.

Truebestein, L., Elsner, D.J., **Leonard, T.A.** (2016). Made to measure – keeping Rho kinase at a distance. *Small GTPases* 7(2):82-92 (doi: 10.1080/21541248.2016.1173770). Review.

Truebestein, L., Elsner, D.J., Fuchs, E., **Leonard, T.A.** (2015). A molecular ruler regulates cytoskeletal remodelling by the Rho kinases. *Nature Communications* 6:10029 (doi: 10.1038/10029).

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Gutierrez-Uzquiza, A., Colon-Gonzalez, F., **Leonard, T.A.**, Canagarajah, B.J., Wang, H., Mayer, B., Hurley, J.H., Kazanietz, M.G. (2013). Coordinated activation of the Rac-GAP β 2-chimaerin by an atypical proline-rich domain and diacylglycerol. *Nature Communications* 4:1849 (doi: 10.1038/ncomms2834).

Yang, H., Tong, J., **Leonard, T.A.**, Im Y.J. (2013). Structural determinants for phosphatidylinositol recognition by Sfh3 and substrate-induced dimer-monomer transition during lipid transfer cycles. *FEBS Lett.* 5;587(11):1610-6 (doi: 10.1016/j.febslet.2013.04.009).

Leonard, T.A. C2 domain proteins. *Encyclopedia of Metalloproteins*. (2013). (doi 10.1007/978-1-4614-1533-6). Book chapter.

Leonard, T.A., Hurley, J.H. (2011). Regulation of protein kinases by lipids. *Curr Opin Struct Biol* 21, 785-791. Review.

Leonard, T.A., Rozycki, B., Saidi, L.F., Hummer, G., Hurley, J.H. (2011). Crystal structure and allosteric activation of Protein Kinase C β II. *Cell* 144 (1), 55-66.

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Wu, Y., Sommers, J.A., Suhasini, A.N., **Leonard, T.A.**, Deakyne, J.S., Mazin, A.V., Shin-ya, K., Kitao, H., Brosh, R.M. (2010). Fanconi Anemia Group J Mutation Abolishes its DNA Repair Function by

Uncoupling DNA Translocation from Helicase Activity or Disruption of Protein-DNA Complexes. *Blood* 116(19) 3780-91.

Oliva M.A., Halbedel S., Freund S.M., Dutow P., **Leonard T.A.**, Veprintsev D.B., Hamoen L.W., Löwe J. (2010). Features critical for membrane binding revealed by DivIVA crystal structure. *EMBO J.* 29(12):1988-2001

Leonard, T.A., Hurley, J.H. (2007). Two Kinase Family Dramas. *Cell* 129 (6), 1037-1038. Preview.

Leonard, T.A., Møller-Jensen, J., Löwe, J. (2005). Towards understanding the molecular basis of bacterial DNA segregation. *Philos Trans R Soc Lond B Biol Sci.* 360 (1455), 523-35. Review.

Leonard, T.A., Butler, P.J.G., Löwe, J. (2005). Bacterial chromosome segregation: Structure and DNA binding of the Soj dimer – a conserved biological switch. *EMBO J.* 24(2), 270-82.

Leonard, T.A., Butler, P.J.G., Löwe, J. (2004). Structural analysis of the chromosome segregation protein Spo0J from *Thermus thermophilus*. *Molecular Microbiology* 53(2), 419-432.