CURRICULUM VITAE

Personal information

Dr. rer. nat. Lilli Winter

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Main areas of research

Muscular dystrophies (MDs), especially plectin- and desmin-related myofibrillar myopathies (MFM), have been my major scientific research focus within the last 10 years. My aim is to perform basic research focused on the structural and functional organization of the cytoskeleton in various cell systems, with emphasis on skeletal muscle. Using a multi-disciplinary approach by combining cell biological, molecular, biochemical, and biophysical techniques I focus on the analysis of pathological molecular pathways (and their reversal) in MD-related cell and animal models.

Professional experience

09/2020-present	**Tenure track** ("Interne Karrierevereinbarung"), Medical University of Vienna, Austria
07/2020-07/2021	**Maternity leave/research project leader** (part-time)
10/2018-present	**Project leader,** Division of Cell Biology, Center for Anatomy and Cell Biology, Medical University of Vienna, Austria
02/2018-09/2018	**Senior researcher,** Division of Cell Biology, Center for Anatomy and Cell Biology, Medical University of Vienna, Austria 08/2016-01/2018 **Maternity leave**
07/2015-07/2016	**Postdoctoral research fellow,** Department of Biochemistry and Cell Biology, Max F. Perutz Laboratories, University of Vienna, Austria
04/2013-05/2015	**Postdoctoral research fellow,** Institute of Neuropathology, University Hospital Erlangen, Erlangen, Germany
02/2010-02/2013	**Postdoctoral research fellow,** Department of Biochemistry and Cell Biology, Max F. Perutz Laboratories, University of Vienna, Austria
05/2008-01/2010	**Clinical Trial Manager**, Roche Austria GmbH, Austria
11/2007-02/2008	**Scientific research assistant** (PhD thesis), Department of Molecular Cell Biology, Max F. Perutz Laboratories, University of Vienna, Austria
05/2004-07/2007	**Scientific research assistant** (PhD thesis), Department of Molecular Cell Biology, Max F. Perutz Laboratories, University of Vienna, Austria

Funded research projects

2019-2023	Project funding by the FWF (Austrian Science Research Fund, grant P31541, "Molecular mechanisms of plectin-related muscular dystrophy")
2014-2015	Project funding by the DGM (Deutsche Gesellschaft f. Muskelkranke e.V.)

2013-2014 Project funding by the ELAN program (Erlanger Leistungsbezogene Anschubfinanzierung und Nachwuchsförderung) of the Friedrich-Alexander University Erlangen-Nürnberg

Scientific awards

2014 Junior price 2014 for research on neuromuscular diseases of the DGM (Deutsche Gesellschaft für Muskelkranke e.V.)

PUBLICATIONS

Peer-reviewed:

1. Zrelski, MM, Kustermann M, and **Winter L**. *Muscle-related plectinopathies*. **Cells.** 2021 Sep 19;10(9):2480. DOI: 10.3390/cells10092480
2. Clemen CS, Schmidt A, **Winter L**, Canneva F, Wittig I, Becker L, Coras R, Berwanger C; German Mouse Clinic Consortium, Hofmann A, Eggers B, Marcus K, Gailus-Durner V, Fuchs H, Hrabe de Angelis M, Krüger M, von Hörsten S, Eichinger L, Schröder R. *N471D WASH complex subunit strumpellin knock-in mice display mild motor and cardiac abnormalities and BPTF and KLHL11 dysregulation in brain tissue.* **Neuropathol Appl Neurobiol.** 2021 Jul 27. DOI: 10.1111/nan.12750
3. Valencia RG, Mihailovska E, **Winter L**, Bauer K, Fischer I, Walko G, Jorgacevski J, Potokar M, Zorec R, and Wiche G. *Plectin dysfunction in neurons lead to tau accumulation on microtubules affecting neuritogenesis, organelle trafficking, pain sensitivity and memory.* **Neuropathol Appl Neurobiol.** 2021 Feb;47(1):73-95. DOI: 10.1111/nan.12635; equal contribution
4. Olivé M, **Winter L,** Fürst DO, Schröder R, and ENMC workshop study group. *246th ENMC international workshop: protein aggregate myopathies.* **Neuromuscul Disord**., 2021 Feb;31(2):158-166. DOI: 10.1016/j.nmd.2020.11.003
5. Ruppert T, Heckmann MB, Rapti K, Schultheis D, Jungmann A, Katus HA, **Winter L**, Frey N, Clemen CS, Schröder R, and Müller OJ. *AAV-mediated cardiac gene transfer of wild-type desmin in mouse models for recessive desminopathies.* **Gene Ther.** 2019 Nov;27(10-11):516-524. DOI: 10.1038/s41434-020-0147-7
6. **Winter L**, Unger A, Berwanger C, Spörrer M, Türk M, Chevessier F, Strucksberg KH, Schlötzer-Schrehardt U, Wittig I, Goldmann WH, Marcus K, Linke WA, Clemen CS, and Schröder R. *Imbalances in protein homeostasis caused by mutant desmin*. **Neuropathol Appl Neurobiol**. 2019 Aug;45(5):476-494. DOI: 10.1111/nan.12516
7. Haug M, Meyer C, Reischl B, Prölß G, Vetter K, Iberl J, Nübler S, Schürmann S, Rupitsch SJ, Heckel M, Pöschel T, **Winter L**, Hermann H, Clemen CS, Schröder R, and Friedrich O. *The MyoRobot technology discloses a premature biomechanical decay of skeletal muscle fiber bundles derived from R349P desminopathy mice.* **Sci Rep** 2019 Jul 24;9(1):10769. DOI: 10.1038/s41598-019-46723-6
8. Spörrer M, Prochnicki A, Tölle RC, Nyström A, Esser PR, Homberg M, Athanasiou I, Zingkou E, Schilling A, Germu R, Thievessen I, **Winter L**, Bruckner-Tuderman L, Fabry B, Magin TM, Dengjel J, Schröder R, and Kiritsi D. *Treatment of keratinocytes with 4-phenylbutyrate in epidermolysis*

bullosa: Lessons for therapies in keratin disorders. **EBioMedicine**. 2019 Jun;44:502-515. DOI: 10.1016/j.ebiom.2019.04.062

9. Clemen CS, **Winter L**, Strucksberg KH, Berwanger C, Türk M, Kornblum C, Florin A, Aguilar-Pimentel JA, Amarie OV, Becker L, Garrett L, Hans W, Moreth K, Neff F, Pingen L, Rathkolb B, Racz I, Rozman J, Treise I, Fuchs H, Gailus-Durner V, de Angelis MH, Vorgerd M, Eichinger L, and Schröder R. *The heterozygous R155C VCP mutation: Toxic in humans! Harmless in mice?* **Biochem Biophys Res Commun** 2018 Sep 18;503(4):2770-2777. DOI: 10.1016/j.bbrc.2018.08.038
10. Diermeier S, Buttgereit A, Schürmann S, **Winter L**, Xu H, Murphy RM, Clemen CS, Schröder R, and Friedrich O. *Preaged remodeling of myofibrillar cytoarchitecture in skeletal muscle expressing R349P mutant desmin*. **Neurobiol Aging**. 2017 Oct;58:77-87. DOI: 10.1016/j.neurobiolaging.2017.06.001
11. Meier SM, Kreutz D, **Winter L**, Klose MHM, Cseh K, Weiss T, Bileck A, Alte B, Mader JC, Jana S, Chatterjee A, Bhattacharyya A, Hejl M, Jakupec M, Heffeter P, Berger W, Hartinger C, Keppler B, Wiche G, and Gerner C. *An organoruthenium anticancer agent shows unexpected target selectivity for plectin.* **Angew Chem Int Ed Engl**. 2017 Jul 3;56(28):8267-8271. DOI: 10.1002/anie.201702242
12. Diermeier S, Iberl J, Vetter K, Haug M, Pollmann C, Reischl B, Buttgereit A, Schürmann S, Spörrer M, Goldmann WH, Fabry B, Elhamine F, Stehle R, Pfitzer G, **Winter L**, Clemen CS, Schröder R, and Friedrich O. *Early signs of architectural and biomechanical failure in isolated myofibers and immortalized myoblasts from desmin-mutant knock-in mice.* **Sci Rep** 2017 May 3;7(1):1391. DOI: 10.1038/s41598-017-01485-x
13. **Winter L**, Wittig I, Peeva V, Eggers B, Heidler J, Chevessier F, Kley RA, Barkovits K, Strecker V, Berwanger C, Herrmann H, Marcus K, Kornblum C, Kunz WS, Schröder R, and Clemen CS. *Mutant desmin substantially perturbs mitochondrial morphology, function and maintenance in skeletal muscle.* **Acta Neuropathol.** 2016 Sep;132(3):453-73. DOI: 10.1007/s00401-016-1592-7; equal contribution
14. Heckmann MB, Bauer R, Jungmann A, **Winter L**, Rapti K, Strucksberg KH, Clemen CS, Li Z, Schröder R, Katus HA and Müller OJ. *AAV9-mediated gene-transfer of desmin ameliorates cardiomyopathy in desmin-deficient mice*. **Gene Ther.** 2016 Aug;23(88-9):673-9. DOI: 10.1038/gt.2016.40
15. Rezniczek GA, **Winter L**, Walko G, and Wiche G. *Functional and genetic analysis of plectin in skin and muscle*. **Methods Enzymol.** 2016;569:235-59. DOI: 10.1016/bs.mie.2015.05.003
16. **Winter L**, Türk M, Harter PN, Mittelbronn M, Kornblum C, Norwood F, Jungbluth H, Thiel CT, Schlötzer-Schrehardt U, and Schröder R. *Downstream effects of plectin mutations in epidermolysis bullosa simplex with muscular dystrophy.* **Acta Neuropathol Commun.** 2016, Apr27;4(1):44. DOI: 10.1186/s40478-016-0314-7; equal contribution
17. Eckharter C, Junker N, **Winter L**, Fischer I, Fogli B, Kistner S, Pfaller K, Zheng B, Wiche G, Klimaschewski L, and Schweigreiter R. *Schwann cell expressed Nogo-B modulates axonal branching of adult sensory neurons through the Nogo-B receptor NgBR*. **Front Cell Neurosci.** 2015, Nov 23;9:454. DOI: 10.3389/fncel.2015.00454

18. **Winter L**, Kuznetsov AV, Grimm M, Zeöld A, Fischer I, and Wiche G. *Plectin isoform P1b and P1d deficiencies differentially affect mitochondrial morphology and function in skeletal muscle.* **Hum Mol Genet.** 2015 Aug 15;24(16):4530-44. DOI: 10.1093/hmg/ddv184
19. Clemen CS, Marko M, Strucksberg KH, Behrens J, Wittig I, Gärtner L, **Winter L**, Chevessier F, Matthias J, Türk M, Tangavelou K, Schütz J, Arhzaouy K, Klopffleisch K, Hanisch FG, Rottbauer W, Blümcke I, Just S, Eichinger L, Hofmann A, and Schröder R. *VCP and PMSF1: antagonistic regulators of proteasome activity.* **Biochem Biophys Res Commun.** 2015 Aug7;463(4):1210-7. DOI: 10.1016/j.bbrc.2015.06.086
20. **Winter L** and Goldmann WH. *Biomechanical characterization of myofibrillar myopathies.* **Cell Biol Int.** 2015, Apr;39(4):361-3. DOI: 10.1002/cbin.10384
21. Clemen CS, Stöckigt F, Strucksberg KH, Chevessier F, **Winter L**, Schütz J, Bauer R, Thorweihe JM, Wenzel D, Schlötzer-Schrehardt U, Rasche V, Krsmanovic P, Katus HA, Rottbauer W, Just S, Müller OJ, Friedrich O, Meyer R, Herrmann H, Schrickel JW, and Schröder R. *The toxic effect of R350P mutant desmin in striated muscle of man and mouse.* **Acta Neuropathol.** 2015, Feb;129(2):297-315. DOI: 10.1007/s00401-014-1363-2
22. Bonakdar N, Schilling A, Spörrer M, Lennert P, Mainka A, **Winter L**, Walko G, Wiche G, Fabry B, and Goldmann WH. *Determining the mechanical properties of plectin in mouse myoblasts and keratinocytes*. **Exp Cell Res.** 2015, Feb 15;331(2):331-7. DOI: 10.1016/j.yexcr.2014.10.001
23. Türk M, Haaker G, **Winter L**, Just W, Nickel FT, Linker RA, Chevessier F, and Schröder R. *C9ORF72-ALS and sarcoidosis: p62- and ubiquitin-aggregation pathology in skeletal muscle*. **Muscle Nerve.** 2014 Sep;50(3):454-5. DOI: 10.1002/mus.24283
24. Molt S, Bührdel JB, Yakovlev S, Schein P, Orfanos Z, Kirfel G, **Winter L**, Wiche G, van der Ven PF, Rottbauer W, Just S, Belkin AM, and Fürst DO. *Aciculin interacts with filamin C and Xin and is essential for myofibril assembly and maintenance*. **J Cell Sci.** 2014, Aug 15;127(Pt 16):3578-92. DOI: 10.1242/jcs.152157
25. **Winter L**, Staszewska I, Mihailovska E, Fischer I, Goldmann WH, Schröder R, and Wiche G. *Chemical chaperone ameliorates pathological protein aggregation in plectin-deficient muscle*. **J Clin Invest.** 2014 Mar 3;124(3):1144-57. DOI: 10.1172/JCI71919
26. Walko G, Wögenstein KL, Fischer I, **Winter L**, Feltri L, and Wiche. G. *Stabilization of the dystroglycan complex in Cajal bands of myelinating Schwann cells through plectin-mediated anchorage to vimentin filaments.* **Glia.** 2013 Aug;61(8):1274-87. DOI: 10.1002/glia.22514
27. Castanõn MJ, Walko G, **Winter L**, and Wiche, G. *Plectin-intermediate filament partnership in skin, skeletal muscle, and peripheral nerve.* **Histochem Cell Biol.**, 2013 Jul;140(1):33-53. DOI: 10.1007/s00418-013-1102-0; equal contribution
28. **Winter L** and Wiche G. *The many faces of plectin and plectinopathies: pathology and mechanisms*. **Acta Neuropathol**. 2013 Jan;125(1):77-93. DOI: 10.1007/s00401-012-1026-0
29. **Winter L**, Schröder R, and Wiche G. *Plectinopathies*. Muscle Disease: Pathology and Genetics – Second Edition, chapter 20B, International Society of Neuropathology (ISN) Book Series, 2013.

30. Teperino R, Amann S, Bayer M, McGee SL, Loipetzberger A, Connor T, Jaeger C, Kammerer B, **Winter L**, Wiche G, Dalgaard K, Selvaraj M, Gaster M, Lee-Young RS, Febbraio MA, Knauf C, Cani PD, Aberger F, Penninger JM, Pospisilik JA, and Esterbauer H. *Hedgehog partial agonism drives Warburg-like metabolism in muscle and brown fat*. **Cell.** 2012 Oct 12;151(2)414-26. DOI: 10.1016/j.cell.2012.09.021
31. Wiche G and **Winter L**. *Plectin isoforms as organizers of intermediate filament cytoarchitecture*. **Bioarchitecture.** 2011 Jan;1(1):14-20. DOI: 10.4161/bioa.1.1.14630
32. Burgstaller G, Gregor M, **Winter L**, and Wiche G. *Keeping the vimentin network under control:cell-matrix adhesion-associated plectin 1f affects cell shape and polarity of fibroblasts*. **Mol Biol Cell.** 2010 Oct 1;12(19):3362-75. DOI: 10.1091/mbc.E10-02-0094
33. **Winter L,** Abrahamsberg C, and Wiche G. *Plectin isoform 1b mediates mitochondrion-intermediate filament network linkage and controls organelle shape*. **J Cell Biol.** 2008 Jun 16;181(6):903-11. DOI: 10.1083/jcb.200710151

Non peer-reviewed (book chapter):

1. **Winter** L, Schröder R, and Wiche G. *Plectinopathies*. Muscle Disease: Pathology and Genetics – Second Edition, chapter 20B, International Society of Neuropathology (ISN) Book Series, 2013.

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