

Dr. Karin de Punder

Institute of Psychology, Department of Clinical Psychology

University of Innsbruck, Innsbruck, Tirol, Austria

Email: Karin.de-punder@uibk.ac.at

Tel: +43 (0)512 507-56077

<https://www.uibk.ac.at/psychologie/mitarbeiter/de-punder/>

Researchgate: [Karin PUNDER | PhD \(researchgate.net\)](https://www.researchgate.net/profile/Karin-Punder)

ORCID: 0000-0003-0510-9147

Positions

- 2021-Present Postdoctoral Researcher, institute of Psychology, Clinical Psychology II, University Innsbruck, Innsbruck, Austria
- 2020-2021 R&D Specialist, Naturafoundation, Numansdorp, The Netherlands
- 2018-2020 Postdoctoral Researcher, Institute of Medical Psychology, Charité – Universitätsmedizin Berlin, Berlin, Germany
- Projects:*
- 1) *Prenatal stress and programming of newborn and infant telomere biology and cellular aging*
 - 2) *Kids to Health (follow up BerlinLCS study)*
- 2014-2018 Doctoral Student/Research Assistant, Institute of Medical Psychology, Charité – Universitätsmedizin Berlin, Berlin, Germany
Supervised by Prof. Dr. Sonja Entringer and Prof. Dr. Christine Heim
- Projects:*
- 1) *Validation of a measure of in-vitro stimulated telomerase expression as a stress-related biomarker for human studies*
 - 2) *Immediate biological embedding of maltreatment in children: Berlin Longitudinal Children Study (BerlinLCS)*
 - 3) *Biological aging in patients with major depression exposed to childhood adversity*
- 2008-2013 Research Technician, Division of Cell Biology II, Netherlands Cancer Institute (NKI-AVL), Amsterdam, The Netherlands
Studying the immunology and cell biology of host pathogen interactions using microscopy and immunological techniques
- 2005-2008 Research Technician, Division of Animal Pathology, Netherlands Cancer Institute (NKI, AVL), Amsterdam, The Netherlands
Performing immunohistochemistry, histology and in vitro hybridization on animal tissue

Education

- 2014-2018 Doctoral Degree at the Institute of Medical Psychology, Charité – Universitätsmedizin Berlin, Berlin, Germany (Summa cum laude)
Thesis: Characterization in humans of in vitro leukocyte maximal telomerase activity capacity (mTAC) and association with stress

Curriculum Vitae – Karin de Punder

- 2010-2013 M.Sc. Degree in Clinical Psychoneuroimmunology, University of Girona, Girona, Spain
Thesis: The dietary intake of wheat and other cereal grains and their role in inflammation
- 2002-2004 M.Sc. Degree in Biomedical Sciences, Leiden University, Leiden, The Netherlands
Thesis: The MR/GR balance hypothesis in the pathogenesis of major depression
- 1999-2002 B.Sc. Degree in Biomedical Sciences, Leiden University, Leiden, The Netherlands

Extra Training

- 2017 Workshop - Multilevel analysis using R, Humboldt University, Berlin, Germany
- 2014 Workshop - Measuring the cortisol diurnal profile, Arizona State University, Phoenix, AZ, USA
- 2009 Course on Clinical Psychoneuroimmunology, Natura Foundation, Numansdorp, The Netherlands
- 2008 Course on Nutrition, Natura Foundation, Numansdorp, The Netherlands
- 2003 Course on Laboratory Animal Science (article 9), Leiden University, Leiden, The Netherlands

Laboratory and Psychobiological Expertise

- ELISA, stress and immune markers in blood, immune cells and saliva
- Telomerase activity assay
- Mitochondrial respiratory function assessment
- Fluorescence and electron microscopy
- Glucocorticoid receptor sensitivity assays
- Psychobiological stress assessment (Trier Social Stress Test, TSST), assessment of endocrine, immune and autonomic responses

Honours and Awards

- 2019 Travel Award, 49th International Society of Psychoneuroendocrinology (ISPNE) Conference, Milan, Italy
- 2018 Excellence in Salivary Bioscience Travel Award, 48th International Society of Psychoneuroendocrinology (ISPNE) Conference, Irvine, CA, USA

Memberships

International Society of Psychoneuroendocrinology (ISPNE)
The European Psychoneuroimmunology Network (EPN)
Deutsche Gesellschaft für klinische Psycho-Neuro-Immunologie (DGkPNI)

Original and Review Articles

2021

Dammering F, Martins J, Dittrich K, Czamara D, Rex-Haffner M, Overfeld J, **de Punder K**, Buss C, Entringer S, Winter SM, Binder EB, Heim C. The pediatric buccal epigenetic clock identifies significant ageing acceleration in children with internalizing disorder and maltreatment exposure. *Neurobiol Stress*. 2021 Sep 11;15:100394. doi: 10.1016/j.ynstr.2021.100394.

Demeulemeester F, **de Punder K**, van Heijningen M, van Doesburg F. Obesity as a Risk Factor for Severe COVID-19 and Complications: A Review. *Cells*. 2021 Apr 17;10(4):933. doi: 10.3390/cells10040933.

Martins J, Czamara, D, Sauer, S, Rex-Haffner, M, Dittrich, K, Dörr, P, **de Punder, K**, Overfeld, J, Knop, A, Dammering, F, Entringer, S, Winter, SM, Buss, C, Heim, C, Binder, EB. Childhood adversity correlates with stable changes in DNA methylation trajectories in children and converges with epigenetic signatures of prenatal stress. *Neurobiol Stress*. 2021;15:100336. doi: 10.1016/j.ynstr.2021.100336.

2020

Entringer S*, **de Punder K***, Overfeld J, Karaboycheva G, Dittrich K, Buss C, Winter SM, Binder EB, Heim C. Immediate and longitudinal effects of maltreatment on systemic inflammation in young children. *Dev Psychopathol*. 2020 Dec;32(5):1725-1731. doi: 10.1017/S0954579420001686.

2019

de Punder K, Heim C, Entringer S. Association between chronotype and body mass index: The role of C-reactive protein and the cortisol response to stress. *Psychoneuroendocrinology*. 2019 Nov;109:104388. doi: 10.1016/j.psyneuen.2019.104388.

de Punder K, Heim C, Wadhwa PD, Entringer S. Stress and immunosenescence: The role of telomerase. *Psychoneuroendocrinology*. 2019 Mar;101:87-100. doi: 10.1016/j.psyneuen.2018.10.019.

de Punder K, Entringer S, Heim C, Deuter CE, Otte C, Wingenfeld K, Kuehl LK. Inflammatory Measures in Depressed Patients With and Without a History of Adverse Childhood Experiences. *Front Psychiatry*. 2018;9:610. doi: 10.3389/fpsy.2018.00610.

2018

Entringer S, **de Punder K**, Buss C, Wadhwa PD. The fetal programming of telomere biology hypothesis: an update. *Philos Trans R Soc Lond B Biol Sci*. 2018 Mar 5;373(1741). doi: 10.1098/rstb.2017.0151.

de Punder K, Heim C, Przesdzing I, Wadhwa PD, Entringer S. Characterization in humans of in vitro leucocyte maximal telomerase activity capacity and association with stress. *Philos Trans R Soc Lond B Biol Sci*. 2018 Mar 5;373(1741). doi: 10.1098/rstb.2016.0441.

2016

Farin HF, Jordens I, Mosa MH, Basak O, Korving J, Tauriello DV, **de Punder K**, Angers S, Peters PJ, Maurice MM, Clevers H. Visualization of a short-range Wnt gradient in the intestinal stem-cell niche. *Nature*. 2016 Feb 18;530(7590):340-3. doi: 10.1038/nature16937.

2015

Pruimboom L, **de Punder K**. The opioid effects of gluten exorphins: asymptomatic celiac disease. *J Health Popul Nutr*. 2015 Nov 24;33:24. doi: 10.1186/s41043-015-0032-y.

de Punder K, Pruimboom L. Stress induces endotoxemia and low-grade inflammation by increasing barrier permeability. *Front Immunol*. 2015;6:223. doi: 10.3389/fimmu.2015.00223.

2014

Jong WS, Daleke-Schermerhorn MH, Vikström D, Ten Hagen-Jongman CM, **de Punder K**, van der Wel NN, van de Sandt CE, Rimmelzwaan GF, Follmann F, Agger EM, Andersen P, de Gier JW, Luirink J. An

autotransporter display platform for the development of multivalent recombinant bacterial vector vaccines. *Microb Cell Fact*. 2014 Nov 25;13:162. doi: 10.1186/s12934-014-0162-8.

Daleke-Schermerhorn MH, Felix T, Soprova Z, Ten Hagen-Jongman CM, Vikström D, Majlessi L, Beskers J, Follmann F, **de Punder K**, van der Wel NN, Baumgarten T, Pham TV, Piersma SR, Jiménez CR, van Ulsen P, de Gier JW, Leclerc C, Jong WS, Luirink J. Decoration of outer membrane vesicles with multiple antigens by using an autotransporter approach. *Appl Environ Microbiol*. 2014 Sep;80(18):5854-65. doi: 10.1128/AEM.01941-14.

2013

van der Woude AD, Mahendran KR, Ummels R, Piersma SR, Pham TV, Jiménez CR, **de Punder K**, van der Wel NN, Winterhalter M, Luirink J, Bitter W, Houben EN. Differential detergent extraction of mycobacterium marinum cell envelope proteins identifies an extensively modified threonine-rich outer membrane protein with channel activity. *J Bacteriol*. 2013 May;195(9):2050-9. doi: 10.1128/JB.02236-12.

de Punder K, Pruimboom L. The dietary intake of wheat and other cereal grains and their role in inflammation. *Nutrients*. 2013 Mar 12;5(3):771-87. doi: 10.3390/nu5030771.

2012

Houben D, Demangel C, van Ingen J, Perez J, Baldeón L, Abdallah AM, Caleechurn L, Bottai D, van Zon M, **de Punder K**, van der Laan T, Kant A, Bossers-de Vries R, Willemsen P, Bitter W, van Soolingen D, Brosch R, van der Wel N, Peters PJ. ESX-1-mediated translocation to the cytosol controls virulence of mycobacteria. *Cell Microbiol*. 2012 Aug;14(8):1287-98. doi: 10.1111/j.1462-5822.2012.01799.x.

Jong WS, Soprova Z, **de Punder K**, ten Hagen-Jongman CM, Wagner S, Wickström D, de Gier JW, Andersen P, van der Wel NN, Luirink J. A structurally informed autotransporter platform for efficient heterologous protein secretion and display. *Microb Cell Fact*. 2012 Jun 18;11:85. doi: 10.1186/1475-2859-11-85.

Weerdenburg EM, Abdallah AM, Mitra S, **de Punder K**, van der Wel NN, Bird S, Appelmelk BJ, Bitter W, van der Sar AM. ESX-5-deficient Mycobacterium marinum is hypervirulent in adult zebrafish. *Cell Microbiol*. 2012 May;14(5):728-39. doi: 10.1111/j.1462-5822.2012.01755.x.

2011

Abdallah AM, Bestebroer J, Savage ND, **de Punder K**, van Zon M, Wilson L, Korbee CJ, van der Sar AM, Ottenhoff TH, van der Wel NN, Bitter W, Peters PJ. Mycobacterial secretion systems ESX-1 and ESX-5 play distinct roles in host cell death and inflammasome activation. *J Immunol*. 2011 Nov 1;187(9):4744-53. doi: 10.4049/jimmunol.1101457.

Daleke MH, Cascioferro A, **de Punder K**, Ummels R, Abdallah AM, van der Wel N, Peters PJ, Luirink J, Manganelli R, Bitter W. Conserved Pro-Glu (PE) and Pro-Pro-Glu (PPE) protein domains target LipY lipases of pathogenic mycobacteria to the cell surface via the ESX-5 pathway. *J Biol Chem*. 2011 May 27;286(21):19024-34. doi: 10.1074/jbc.M110.204966.

2010

Sani M, Houben EN, Geurtsen J, Pierson J, **de Punder K**, van Zon M, Wever B, Piersma SR, Jiménez CR, Daffé M, Appelmelk BJ, Bitter W, van der Wel N, Peters PJ. Direct visualization by cryo-EM of the mycobacterial capsular layer: a labile structure containing ESX-1-secreted proteins. *PLoS Pathog*. 2010 Mar 5;6(3):e1000794. doi: 10.1371/journal.ppat.1000794.

2008

de Witte MA, Jorritsma A, Swart E, Straathof KC, **de Punder K**, Haanen JB, Rooney CM, Schumacher TN. An inducible caspase 9 safety switch can halt cell therapy-induced autoimmune disease. *J Immunol*. 2008 May 1;180(9):6365-73. doi: 10.4049/jimmunol.180.9.6365.

Boekhoorn K, Sarabdjitsingh A, Kommerie H, **de Punder K**, Schouten T, Lucassen PJ, Vreugdenhil E. Doublecortin (DCX) and doublecortin-like (DCL) are differentially expressed in the early but not late stages of murine neocortical development. *J Comp Neurol*. 2008 Apr 1;507(4):1639-52. doi: 10.1002/cne.21646.

Book Chapters

Entringer S, **de Punder K**, Verner G, Wadhwa PD. Fetal programming of telomere biology: Role of maternal nutrition, obstetric risk factors and suboptimal birth outcomes in diet, nutrition, and fetal programming. *Nutrition and Health*, pp.569-593. 2017, *Springer International Publishing AG*.

Published Abstracts

de Punder K, Overfeld J, Karaboycheva G, Winter SM, Buss C, Binder EB, Entringer S, Heim C. C-reactive protein levels in children aged 3–5 years with verified exposure to maltreatment: Sex differences and association with depression. *Brain Behav Immun*. 2019, 81:35

de Punder K, Heim C, Pathik D, Wadhwa, Entringer S. Maximal telomerase activity capacity (mTAC) mediates the effect of the cortisol stress response on leukocyte telomere length. *Brain Behav Immun*. 2019, 81:22

Karaboycheva G, **de Punder K**, Overfeld J, Dörr P, Dittrich K, Murray E, Binder EB, Entringer S, Heim C. Intestinal dysbiosis in maltreated children is associated with concentrations of salivary cortisol, C-reactive protein and with depressive symptoms. *Brain Behav Immun*. 2019, 81:54

Dammering F, McEwan L, Provençal N, **de Punder K**, Overfeld J, Martins J, Czamara D, Rex-Haffner M, Hoffmann F, Kobor MS, Buss C, Winter SM, Entringer S, Binder EB, Heim C. Psychiatric symptom severity mediates the effect of adversity on epigenetic aging in children aged 3–5 years. *Psychoneuroendocrinology*. 2019, 107S: 1-82

de Punder K, Overfeld J, Karaboycheva G, Winter SM, Buss C, Binder EB, Entringer S, Heim C. Elevated C-reactive protein levels in children aged 3–5 years with verified exposure to maltreatment: Sex differences and association with depressive symptoms. *Psychoneuroendocrinology*. 2019, 100S:1-64

de Punder K, Heim C, Entringer S. Association between chronotype and body mass index: The role of C-reactive protein and the cortisol sresponse to stress. *Psychoneuroendocrinology*. 2019, 100S:1-64

Dammering F, McEwan L, Provençal N, **de Punder K**, Overfeld J, Martins J, Czamara D, Rex-Haffner M, Hoffmann F, Kobor MS, Buss C, Winter SM, Entringer S, Binder EB, Heim C. Bidirectional effect of early adversity on epigenetic ageing in children: Mediation by C-reactive protein and moderation by FKBP5 gene and cortisol status. *Psychoneuroendocrinology*. 2018, 100S:1-64

de Punder K, Heim C, Przesdzing I, Wadhwa PD, Entringer S. Characterization of *in vitro* leukocyte maximal telomerase activity capacity (mTAC) as a stress-related measure for human studies. *Psychoneuroendocrinology*. 2017, 83S:1-89

de Punder K, Overfeld J, Dörr Pr, Dittrich K, Winter SM, Kubiak N, Karaboycheva G, Heim C. Maltreatment is associated with elevated C-reactive protein levels in 3 to 5 year-old children. *Brain Behav Immun*. 2017, 66:e17-e18

de Punder K, Heim C, Wadhwa PD, Entringer S. Characterization of *in vitro* leukocyte maximal telomerase activity capacity (mTAC) in humans: Association with chronic stress exposure and stress-reactivity. *Brain Behav Immun*. 2017, 66:e17

van Zon M, **de Punder K**, van der Sar A, Brosch R, Pando RH, Grootemaat A, Tigchelaar-Gutter W, van der Wel N. Subcellular localization of *M. tuberculosis in vivo* and effect of the adaptive immunity. *Ultrastruct Pathol*. 2017, 41(1):133

de Punder K, Overfeld J, Dörr P, Dittrich K, Winter SM, Kubiak N, Karaboycheva G, Heim C. Exposure to child maltreatment is associated with elevated stress and immune mediators in children aged 3–5 years. *Psychoneuroendocrinology*. 2016, 71S:1–78

de Punder K, Heim C, Wadhwa PD, Entringer S. *In vitro* stimulated leukocyte telomerase activity is associated with chronic stress exposure. *Psychoneuroendocrinology*. 2016, 71S:1–78

Overfeld J, Nadig-Haynes K, **De Punder K**, Dörr P, Dittrich K, Winter SM, Haynes J, Buss C, Heim C (2016). Hippocampal volume in children aged 3–5 years with verified maltreatment exposure. *Psychoneuroendocrinology*. 2016, 71S:1–78

de Punder K, Heim C, Entringer S. Plasma levels of lipopolysaccharide-binding protein in response to psychosocial stress induction: Association with sympathetic nervous system response. *Brain Behav Immun*. 2016, 57:e25

de Punder K, Heim C, Entringer S. Validation of a measure of in-vitro stimulated telomerase expression as a stress-related biomarker for human studies. *Psychoneuroendocrinology*. 2015, 61:1–78

Conference Oral Presentations

Stress and immunosenescence: the role of telomerase. Annual Conference of the International Society of Psychoneuroendocrinology (ISPNE), Milan, Italy, September 2019.

Stress and cellular aging-related processes. Jahrestagung Psychologie und Gehirn (PuG), Dresden, Germany, June 2019.

C-reactive protein levels in children aged 3-5 years with verified exposure to maltreatment: Sex differences and association with depression. German Endocrine Brain Immune Network (GEBIN) Meeting/Annual Conference of the Psychoneuroimmunology Research Society (PNIRS), Berlin, Germany, June 2019.

Maximal telomerase activity capacity (mTAC) mediates the effect of the cortisol stress response on leukocyte telomere length. German Endocrine Brain Immune Network (GEBIN) Meeting/Annual Conference of the Psychoneuroimmunology Research Society (PNIRS), Berlin, Germany, June 2019.

Erhöhte C-reactive Protein Spiegel in 3-5 jährigen Kindern mit frühkindlicher Misshandlung: Geschlechterunterschiede und Zusammenhang mit depressiven Symptomen. Kongress der Deutsche Gesellschaft für Psychiatrie und Psychotherapie, Psychosomatik und Nervenheilkunde (DGPPN), Berlin, Germany, November 2018.

Characterization of *in vitro* leukocyte maximal telomerase activity capacity (mTAC) as a stress-related measure for human studies. Annual Conference of the International Society of Psychoneuroendocrinology (ISPNE), Zurich, Switzerland, September 2017.

Frühkindliche Misshandlung ist assoziiert mit erhöhten Konzentrationen an Cortisol und C-reaktivem Protein im Alter von 3-5 Jahren. Kongress der Deutschen Gesellschaft für Kinder- und Jugendpsychiatrie, Psychosomatik und Psychotherapie (DGKJP), Ulm, Germany, March 2017.

In vitro stimulated leukocyte telomerase activity is associated with chronic stress exposure. Jahrestagung der Deutschen Gesellschaft für Medizinische Soziologie (DGMS) und der Deutschen Gesellschaft für Medizinische Psychologie (DGMP), Berlin, Germany, September 2016.

Conference Poster Presentations

de Punder K, Heim C, Entringer S. Association between chronotype and body mass index: The role of C-reactive protein and the cortisol response to stress. Annual Conference of the International Society of Psychoneuroendocrinology (ISPNE), Irvine, California, USA, September 2018.

de Punder K, Overfeld J, Karaboycheva G, Winter SM, Buss C, Binder EB, Heim C. Elevated C-reactive protein levels in children aged 3-5 years with verified exposure to maltreatment: Sex differences and association with depressive symptoms. Annual Conference of the International Society of Psychoneuroendocrinology (ISPNE), Irvine, California, USA, September 2018.

de Punder K, Overfeld J, Karaboycheva G, Winter SM, Buss C, Binder EB, Heim C (2018). Elevated C-reactive protein Levels in children aged 3-5 years with verified exposure to maltreatment: Association with depressive symptoms. Annual Meeting of the Society of Biological Psychiatry (SOBP), New York, USA, May 2018.

de Punder K, Entringer S, Heim C, Otte C, Wingenfeld K, Kuehl LK. Increased interleukin-6 levels in patients with major depression exposed to childhood adversity. Annual Meeting of the Society of Biological Psychiatry (SOBP), New York, USA, May 2018.

de Punder K, Overfeld J, Dörr P, Dittrich K, Winter SM, Kubiak N, Karaboycheva G, Heim C. Maltreatment is associated with elevated cortisol and C-reactive protein concentrations in 3 to 5 year-old children. World Congress of Psychiatry, Berlin, Germany, October 2017.

de Punder K, Overfeld J, Dörr P, Dittrich K, Winter SM, Kubiak N, Karaboycheva G, Heim C. Maltreatment is associated with elevated C-reactive protein levels in 3 to 5 year-old children. Annual Conference of the Psychoneuroimmunology Research Society (PNIRS), Galveston, Texas, USA, June 2017.

de Punder K, Heim C, Wadhwa PD, Entringer S. Characterization of *in vitro* leukocyte maximal telomerase activity capacity (mTAC) in humans: Association with chronic stress exposure and stress-reactivity. Annual conference of the Psychoneuroimmunology Research Society (PNIRS), Galveston, Texas, USA, June 2017.

de Punder K, Overfeld J, Dörr P, Dittrich K, Winter SM, Kubiak N, Karaboycheva G, Heim C. Exposure to child maltreatment is associated with elevated stress and immune mediators in children aged 3–5 years. Annual Conference of the International Society of Psychoneuroendocrinology (ISPNE), Miami, Florida, USA, September 2016,

de Punder K, Heim C, Wadhwa PD, Entringer S. *In vitro* stimulated leukocyte telomerase activity is associated with chronic stress exposure. Annual Conference of the International Society of Psychoneuroendocrinology (ISPNE), Miami, Florida, USA, September 2016.

de Punder K, Heim C, Entringer S. Plasma levels of lipopolysaccharide-binding protein in response to psychosocial stress induction: Association with sympathetic nervous system response. Annual Conference of the Psychoneuroimmunology Research Society (PNIRS), Brighton, UK, June 2016.

de Punder K, Heim C, Entringer S. Validation of a measure of in-vitro stimulated telomerase expression as a stress-related biomarker for human studies. Annual Conference of the International Society of Psychoneuroendocrinology (ISPNE), Edinburgh, Scotland, September 2015.

Manuscript Reviews

Psychoneuroendocrinology

Psychosomatic Medicine

Journal of the Royal Society Interface

Restorative Neurology and Neuroscience

PLOS ONE

Stress

Journal of Neural Transmission

Neurobiology of Stress

Behavioural Brain Research