Biographical Sketch

Personal Information

Name:	**Karin Pfisterer, PhD**
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Current affiliation:	Department of Dermatology, Medical University of Vienna Währinger Gürtel 18-20, BT 24, Ebene 4, 1090 Vienna, Austria
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Publication link:	https://scholar.google.com/citations?user=bcBLKcUAAAAJ&hl=en

Education

28. 10. 2024	Venia docendi in “Tissue Homeostasis, inflammation and immunity”, MUW
2011 - 2014	PhD, Molecular Immunology Unit, MUW, Austria (PhD Supervisors: Dr. Vladimir Leksa & Prof. Hannes Stockinger)
2007 - 2010	MSc (Mag.rer.nat.), Genetics/Microbiology (Immunobiology), University of Vienna, Austria

Positions

Since 06/2026	Independent Group Leader at the Department of Dermatology, MUW, AT
2021 - present	Principal Investigator at the Department of Dermatology, MUW, AT
2019 - 2021	University Assistant (Senior Postdoc level) at the Department of Dermatology, MUW, AT
2017 - 2018	Visiting Scientist at the Advanced Imaging Center (AIC), HHMI Janelia Research Campus, USA
2015 - 2019	Postdoctoral Research Associate at the Randall Centre for Cell & Molecular Biophysics, King’s College London, UK
2014 - 2015	Postdoctoral Researcher at the Molecular Immunology Unit, MUW, AT
2011 - 2014	Postgraduate Researcher at the Molecular Immunology Unit, MUW, AT
2009 - 2011	Research Assistant at the Department of Dermatology, MUW, AT

Career Breaks

12.2008 – 09.2009	Maternity leave 1
08.2013 – 02.2014	Maternity leave 2

Research interests

My research focuses on regulatory pathways that maintain tissue homeostasis and how this balance is disrupted in pathological conditions. In particular, we investigate how alterations in tissue mechanics contribute to metastatic cancers, especially melanoma, and inflammatory skin diseases such as psoriasis. We use advanced imaging technologies, including live 2D/3D and super-resolution microscopy, to study cell dynamics and cell-matrix interactions. Using these approaches, we discovered how non-migratory cancer cells actively probe the extracellular matrix and respond to changes in tissue mechanics (PMID: 32294157). To support reproducibility and accessibility, we published detailed protocols and guidelines for studying cancer cells in 3D matrix environments (PMID: 33732778). We also analyse cell phenotypes at the protein and molecular levels using *in vitro* assays, flow cytometry, qPCR, molecular cloning, and next-generation sequencing. Most recently, we identified a fibroblast subset responsible for extracellular matrix (ECM) remodelling in psoriasis, which

may contribute to disease progression (PMID: 39603411). Our review on the skin ECM (PMID: 34295891) has been cited 280 times as of June 15, 2026 (Google Scholar), highlighting the growing interest in tissue mechanics and the role of the ECM in pathological conditions.

Selected Publications

1.	Balsini P, ..., Pfisterer K. Stiffness-Dependent Lysyl Oxidase Regulation through Hypoxia-Inducing Factor 1 Drives Extracellular Matrix Modifications in Psoriasis. *J Invest Dermatol* (2025). DOI: https://doi.org/10.1016/j.jid.2024.10.611 **>** Key methodology developed to image and quantify the structure of skin extracellular matrix (ECM).
2.	Pfisterer K, …, Weninger W. Non-IgE-reactive allergen peptides deteriorate the skin barrier in house dust mite-sensitized atopic dermatitis patients. *Front Cell Dev Biol* (2023). DOI: https://doi.org/10.3389/fcell.2023.1240289 **>** NGS analysis pipelines established to decipher cellular heterogeneity in complex inflamed and healthy human skin samples.
3.	Okamoto I, Pfisterer K, …, Weninger W. Discovery of a previously unreported deletion in the CDKN2A gene in a case of familial melanoma in Austria. *Eur J Cancer* (2023). DOI: https://doi.org/10.1016/j.ejca.2022.11.037 **>** NGS workflow established to analyse melanoma samples within a collaborative project.
4.	Pfisterer K, …, Weninger W. The Extracellular Matrix in Skin Inflammation and Infection. *Front Cell Dev Biol* (2021). DOI: https://doi.org/10.3389/fcell.2021.682414 **>** A highly cited review about the role of the ECM in various skin diseases (starting point of our ECM research at MUW).
5.	Pfisterer K, …, Parsons M. Imaging of Human Cancer Cells in 3D Collagen Matrices. *Bio Protoc* (2021). DOI: https://doi.org/10.21769/bioprotoc.3889 **>** 3D ECM-cell model to study cancer cell migration and cancer cell-ECM interactions using advanced imaging approaches.
6.	Pfisterer K, …, Parsons M. FMNL2 regulates dynamics of fascin in filopodia. *J Cell Biol* (2020). DOI: https://doi.org/10.1083/jcb.201906111 **>** Mechanistic characterisation of sensory, non-migratory cancer cells using advanced imaging approaches.
7.	Levitt JA, …, Pfisterer K, …, Ameer-Beg SM. Quantitative real-time imaging of intracellular FRET biosensor dynamics using rapid multi-beam confocal FLIM. *Sci Rep* (2020). DOI: https://doi.org/10.1038/s41598-020-61478-1 **>** Collaboration on advanced imaging project.
8.	Marsh RJ, Pfisterer K, …, Cox S. Artifact-free high-density localization microscopy analysis. *Nat Methods* (2018). DOI: https://doi.org/10.1038/s41592-018-0072-5 **>** Collaboration on advanced imaging and image analysis project (substantial wet lab contribution).
9.	Fox-Roberts P, …, Pfisterer K, …, Cox S. Local dimensionality determines imaging speed in localization microscopy. *Nat Commun* (2017). DOI: https://doi.org/10.1038/ncomms13558 **>** Collaboration on advanced imaging project.
10.	Jayo A, …, Pfisterer K, …, Parsons M. Fascin Regulates Nuclear Movement and Deformation in Migrating Cells. *Dev Cell* (2016). DOI: https://doi.org/10.1016/j.devcel.2016.07.021 **>** Mechanistic characterisation of nuclear deformation in migrating cancer cells using advanced imaging.
11.	Pfisterer K, Lipnik KM, Hofer E, Elbe-Bürger A. CD90(+) human dermal stromal cells are potent inducers of FoxP3(+) regulatory T cells. *J Invest Dermatol* (2015). DOI: https://doi.org/10.1038/jid.2014.309 **>** Study on the interaction of skin stromal and immune cells.
12.	Pfisterer K, …, Leksa V. The late endosomal transporter CD222 directs the spatial distribution and activity of Lck. J Immunol (2014). DOI: https://doi.org/10.4049/jimmunol.1303349 **>** Investigations on regulatory mechanisms to activate and dampen T cell signalling.

Complete List of Publications

https://pubmed.ncbi.nlm.nih.gov/?term=Pfisterer+K+AND+Vienna+OR+Karin+Pfisterer&sort=date

Top 10 Selected Research Achievements

1.	Horizon Europe Mission Cancer Consortium Grant (2026 – 2030, Coordinator) **>** € 5,709,197.25 (thereof 2,137,725.- for my lab at MUW) for investigating how environmental exposures shape melanoma initiation, progression and metastasis in young adults.
2.	Fellinger Krebsforschung Grant (2021 – present, PI) **>** € 25 000.- seed funding to characterize „Pioneer Melanoma Cells“
3.	Keynote Lecture about Extracellular Matrix in Skin (2023) **>** at the CECAM-Lorentz Workshop “The Extracellular Matrix: How to model structure complexity” hosted by the Centre Européen de Calcul Atomique et Moléculaire, Lausanne, CH, forming impactful connections to current collaborators.
4.	Plenary Talk at the 3rd Cell and Experimental Biology Conference (2022) **>** at the CEB-2022; Title: “The Extracellular Matrix in Skin Inflammation and Cancer”
5.	FFG Career Grant (2019) **>** Funding under the “Finding talent: Researchers” scheme for relocating from the UK to Austria.
6.	Public outreach event UK (2018) **>** co-organisation of an art-science hybrid event for primary school children with the artist Martina Amati, held within the “Under” art installation at the Wellcome Collection, London
7.	AIC visiting scientist fellowship (2017 – 2018) **>** research stays to perform advanced imaging experiments analysing cancer cells-matrix interactions in 3D using a lattice light sheet microscope prototype at the Advanced imaging Center, HHMI Janelia Research Campus, Ashburn, USA
8.	MUW Researcher of the month (2015) **>** for a publication about skin stromal cells and their potential to induce regulatory T cells in vitro.
9.	INiTS Life Science Award (2012) **>** 3rd price for the concept of a patient-specific therapeutic approach to treat inflammatory skin diseases.
10.	Training and mentoring of junior scientist (2015 – present): Supervision and co-supervision of five diploma student (Bahareh Horr, MUW; Lea Lemajic, Uni Wien; Pauline Weinzettl, FH Technikum Wien; David Samardzic, Uni Wien; Royina Saha, KCL), two PhD students (Parvaneh Balsini, MCCA program, MUW; Brooke Lumicisi, KCL) and one Bachelor student (Stefan Suette, FH Campus Wien) of which three graduated with distinction.

National and international collaboration partners

Dr. Pfisterer performed research in labs in and outside of Austria and therefore has several ongoing collaboration with national and international scientists, such as Dr. Maddy Parsons (King’s College London, UK), Dr. Susan Cox (King’s College London, UK), Dr. Teng-Leong Chew (Advanced Imaging Center, Janelia Research Campus, HHMI, Ashburn, USA), Dr. Robert Prevedel (EMBL Heidelberg, DE), Dr. Fiona Watt (EMBL Heidelberg, DE), Dr. Kari Nielsen (Lund University, S), Dr. Klemens Rottner (Braunschweig, DE), Dr. Roeland Merks (Leiden, NL), Dr. Christoph Bock (CeMM, AT), Dr. Matthias Wielscher (MUW, AT), Dr. Ichiro Okamoto (MUW, AT), Dr. Beate Lichtenberger (MUW, AT), Dr. Philipp Tschandl, Dr. Wolfgang Weninger (MUW, AT).