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Decoding Early-Life UVA and Skincare Additive Interactions Driving Melanoma Risk and Progression in Young Adults



29 September 2026
Karin Pfisterer

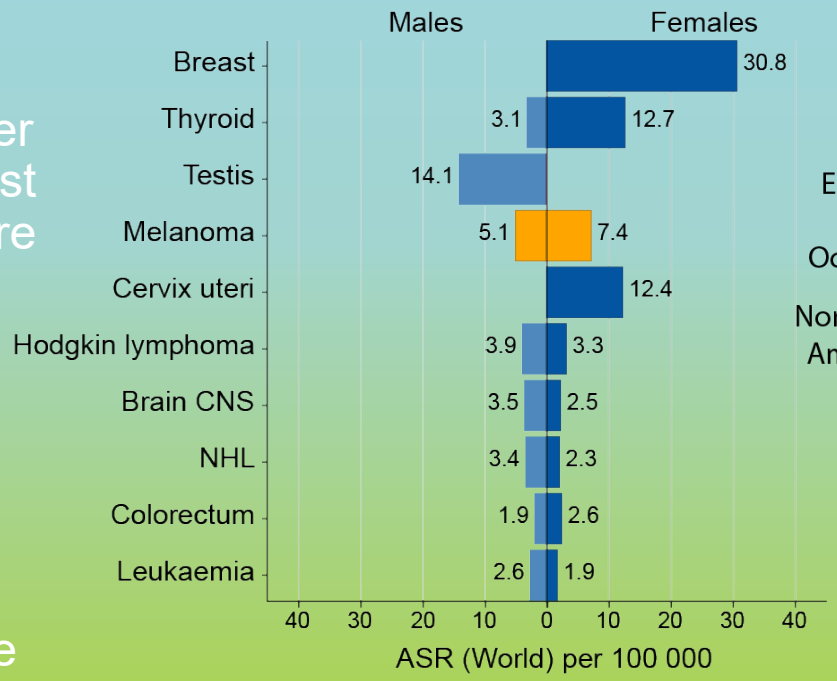
5 years Cancer Mission:
Stronger Through Connection

BRUSSELS
29 SEPTEMBER – 01 OCTOBER

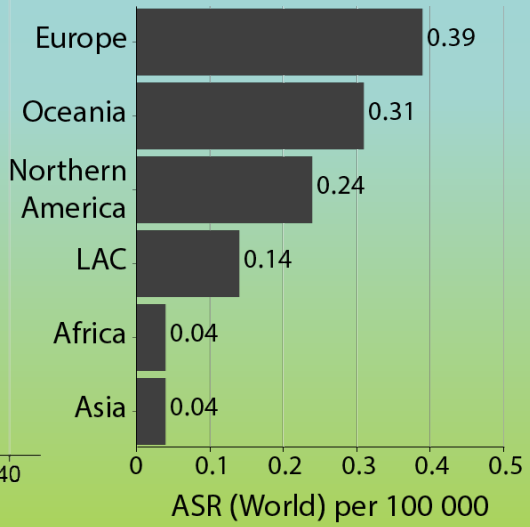
The Problem

- Malignant melanoma is one of the most aggressive skin cancers, accounting for 75–80% of skin cancer-related deaths worldwide.
- In Europe, it is the fourth most common cancer in young adults under 40, and the second most common cancer when sex-specific cancers are excluded.
- Despite improved prevention campaigns, mortality remains high in Europe, suggesting additional early-life risk factors.
- Rising misinformation on sunscreen ingredients in social media undermines prevention, leaving children and young people unprotected.

Incidence Rate



Mortality Rate



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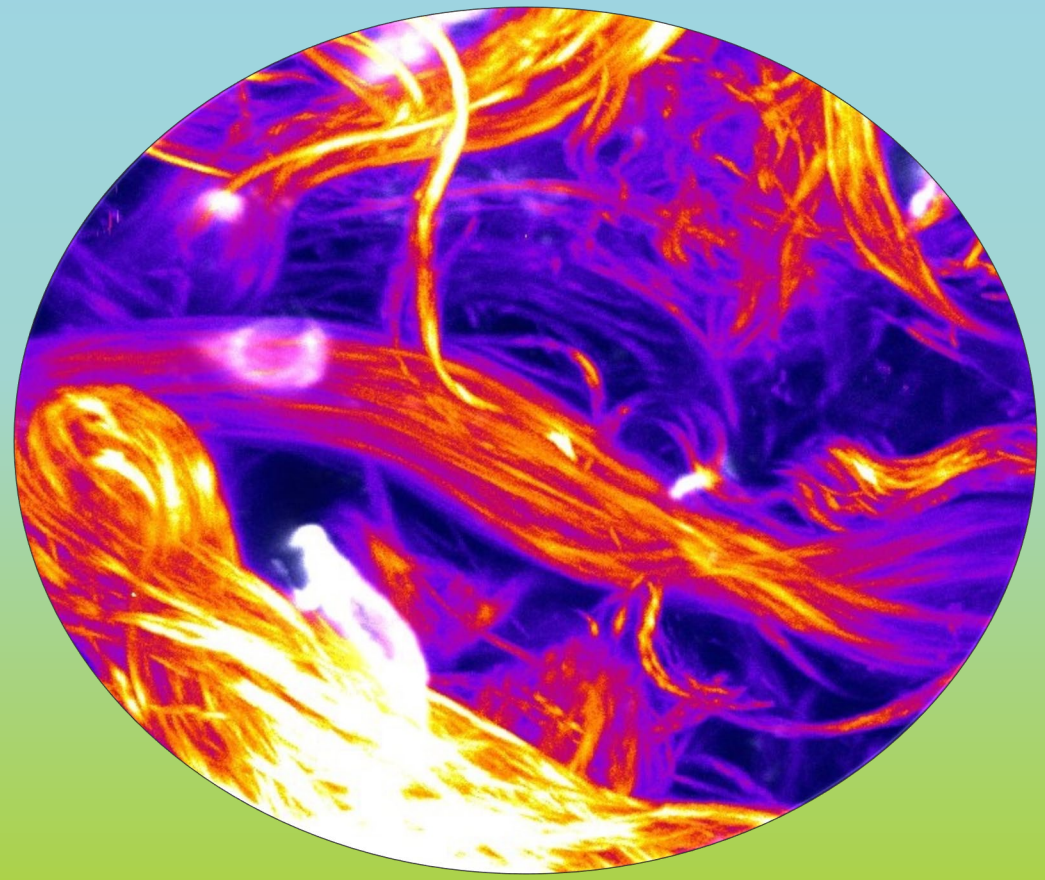
Data were extracted from Cancer Today, IARC, https://gco.iarc.who.int/today (data version: Globocan 2022, version 1.1)

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Our Vision

Our vision is to redefine how we understand and prevent melanoma in young adults by uncovering how UVA and skincare exposures reshape the extracellular matrix (ECM) and reprogramme skin cells and to create a tumour-permissive environment.

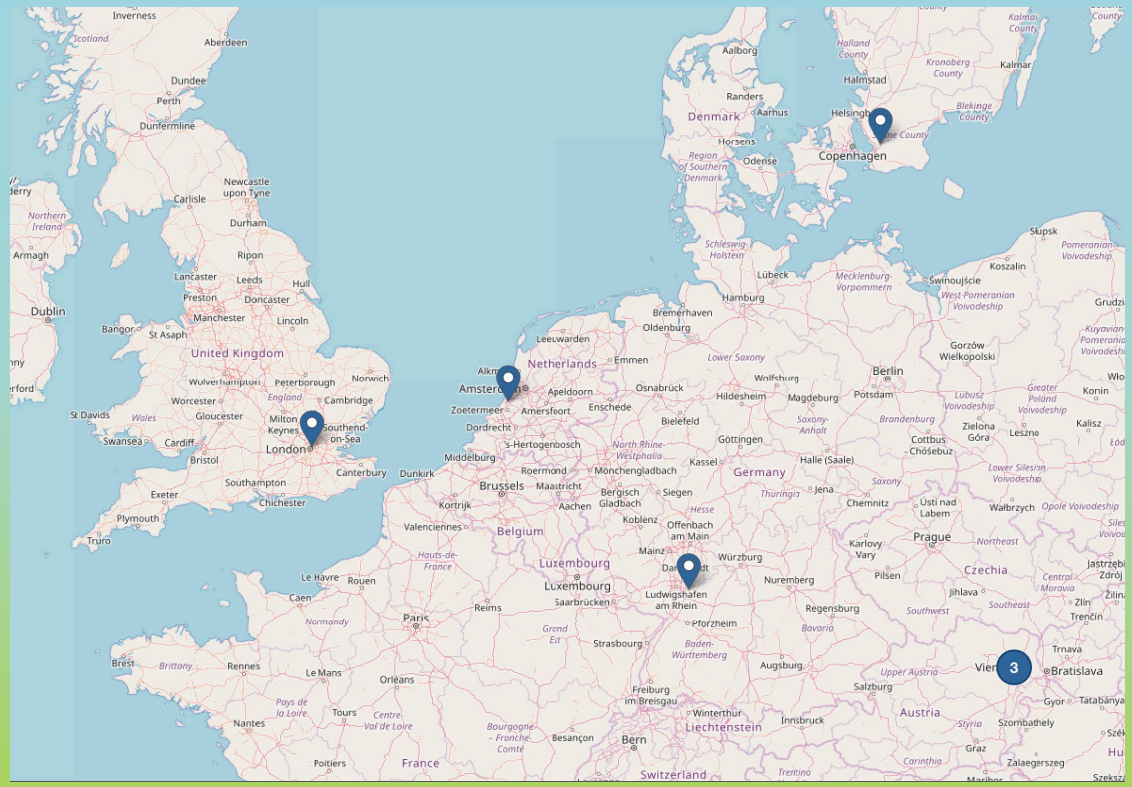
Our mission is to build the first mechanics-informed melanoma-ECM atlas and reveal exposure-linked biomarkers.



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Who are we?

Participant	Participant organisation	Country
Karin Pfisterer	Medical University of Vienna	AT
Christoph Bock	CeMM Research Center for Molecular Medicine	AT
Roeland Merks	Leiden University	NL
Robert Prevedel	EMBL Heidelberg	DE
Maddy Parsons	King's College London / Smart Trials Hub	UK
Kari Nielsen	Lund University / Region Skåne	SE
Marije Kruis	Marije Kruis Communications	AT



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Overarching Objectives

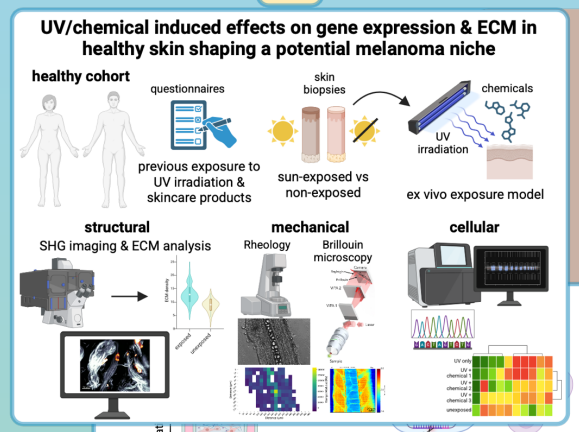
- **Prevent** melanoma onset by decoding the impact of chemical exposures on UVA-induced damage in early childhood, including ECM remodelling and skin cell mutations that shape the melanoma niche.
- **Map** multimodal data from tumour biopsies of young adult patients to resolve the spatial context of cell subsets, proteins, lipids, and metals within the tumour and its microenvironment.
- **Transform** mechanistic and spatial insights into a computational model of melanoma cell-ECM interactions, migration, and proliferation as hallmarks of disease progression.
- **Predict** patient-specific risk of melanoma metastasis by identifying biomarkers and environmental exposure signatures within the ECM, immune cells, structural cells, and melanoma tissue.
- **Engage and empower** citizens and patients by communicating scientific evidence, restoring public trust, guiding EU regulations, shaping prevention strategies, and enhancing awareness campaigns.

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How will we do this?

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01 UVA/chemical effects on healthy skin

02 ECM characterisation in melanoma

03 ECM effects on melanoma subpopulations

04 Integrated spatial multiomics atlas

05 Computational 3D melanoma-ECM model

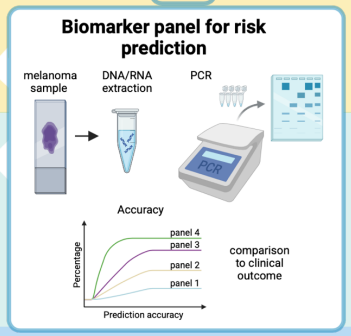
06 Biomarker panel for risk prediction

07 citizen / patient engagement & policy impact

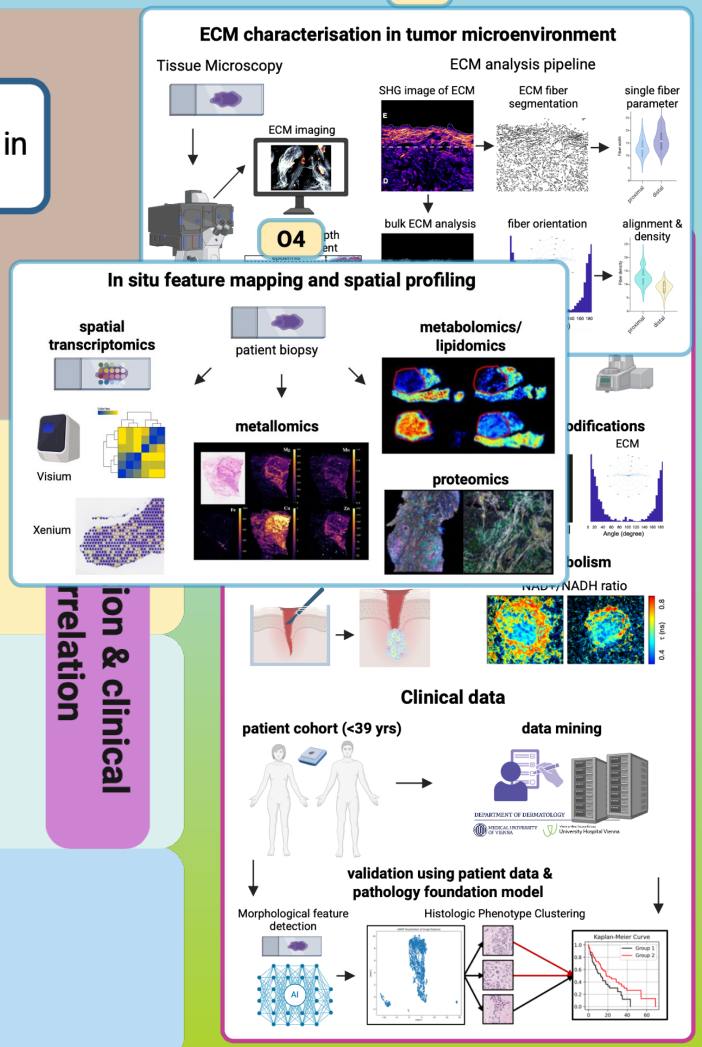
Translation

DEC

06



03



ion & clinical correlation

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Expected results & impact

- Over 3,600 high-dimensional FAIR-compliant multiomics and biophysical datasets on UVA/chemical-induced changes in skin and melanoma.
- A predictive computational model forming the basis of a patient-specific metastatic risk tool.
- A prototype biomarker panel for early detection and stratification in young melanoma patients.
- An innovative reproducible ex vivo skin exposure assay and a 3D in silico ECM-melanoma model.
- Identification of novel targetable pathways specific to early-onset melanoma.
- Educational and awareness resources co-created with patient organisations to counter misinformation.

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THANK YOU!