DR ESTERE SEINKMANE

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Nationality: Latvia (with UK settled status: full right to work in both EU and UK)

A scientist by training (Cell Biology PhD, University of Cambridge/MRC LMB) with experience in academia, industry and non-profit sectors. Main expertise includes proteomics as well as other -omics techniques and the associated bioinformatics analysis, in addition to a diverse skillset of project coordination, teaching & outreach, community-building, event organisation, and communications.

SELECTED WORK EXPERIENCE

RESEARCH

May 2025 – present **Research Fellow – Computational Scientist for Proteomics at UCL Cancer Institute, London**

- Developing and implementing computational approaches for quantitative processing of mass spectrometry data, characterisation of the regulatory phosphoproteome, and data integration with multi-omics.
- Working in closely with other institute researchers, managing a variety of high-paced, collaborative projects; leading on project design and the interpretation of experimental results, as well as training other scientists

Jun 2023 – Oct 2024 **Proteomics Scientist at RxCelerate, Cambridge**

Delivered ProQuant® platform offering proteomics and data analysis services for drug discovery:

- Designed LC-MS/MS-based proteomics experiments based on clients' (small biotech start-ups to bigger pharma) needs: e.g. analysed cleavage patterns and proteoforms of biologics; investigated PTM biomarkers in human serum
- Performed full proteomics pipeline data processing and analysis, from raw mass spectra to biological insight, using commercial and open-source software, and bespoke Python and R scripts for downstream analysis and visualisation
- Developed new bioinformatics methods, incl. setting up DIA analysis pipelines from scratch, and designing and implementing QC procedures, creating and updating relevant codebase
- Conducted exploratory data analysis on internal datasets of clinical data and plasma proteomics. Involved in setting up proof-of-concept pilot projects, e.g. plasma PTM signatures of drug liver toxicity
- Managed internal and external projects, liaising with other teams within RxCelerate (e.g. *in vitro* scientists for sample preparation and protocol optimisation) and with external service providers; delivered and presented results internally and externally to clients
- Aided data-driven projects beyond proteomics, e.g. analysis of multiplex assays with linear mixed models

Oct 2017 – Oct 2021 **PhD Candidate**
Nov 2021 – Oct 2022 **Postdoctoral scientist at MRC Laboratory of Molecular Biology, Cambridge**

- Completed PhD project, investigating the interplay between cell-autonomous circadian rhythms and protein homeostasis in mammalian cells
- Developed and optimised cellular assays to gain insight into temporal regulation of cell metabolism, protein synthesis and degradation, and post-translational function
- Developed and implemented advanced pulsed SILAC-TMT dynamic proteomics strategies as well as novel analyses of existing -omics datasets (RNAseq, phosphoproteomics, network/GO analyses) and multiomics integration
- Involved in multiple collaborative projects, incl. performing a novel phosphoproteomics and protein disorder regions (IDR) analysis for a biophysics project, resulting in a *Nature* article
- Wrote and edited multiple scientific articles, reviews, proposals, presentations; presented findings at national and international conferences

2014-2016 **Research intern,** multiple months-long placements in **UK, Germany, Sweden**

- Worked with GC-MS-based glycomics and Bayesian modelling approaches for investigating protein glycosylation (University of York, research assistant & final year project)
- Developed tumour spheroids methods for spatial metabolomics (EMBL, Germany, internship)
- Conducted CRISPR screens for glioblastoma cancer models (Karolinska Institutet, Sweden, Erasmus+)
- Employed lipidomics and signalling studies in prostate cancer organoids (Babraham Institute, UK, Amgen Scholars placement)

OUTREACH, COMMUNITY-BUILDING & TEACHING

Oct 2022 – present **Co-Director & Programme Manager at Cell Ag UK**

- Leading on science outreach and public engagement: e.g. organised a panel talk at a music festival in Scotland, interactive workshops at schools.
- Established several new partnerships; involved in community-building projects: careers development programmes, journal clubs. Previously completed a research project on UK universities' potential in cellular agriculture.
- Secured grant funding, talked at public events nationally and internationally

Apr 2025 – present **Science outreach & open science event organiser**

- Organising an interdisciplinary science school & retreat at INTP (Institut Nature e Teoria en Pireneus) in France and a weekend workshop in Czechia in Sept 2025
- Working on open science and metascience initiatives, incl. leading on funding bids and stakeholder engagement

Jun 2018 – Aug 2021 **PhD Tutor at Brilliant Club**
Session Leader, Postgraduate Outreach at the University of Cambridge

Designed and delivered tutorials, taster lectures, and outreach programs for students from underrepresented backgrounds, incl. syllabus development, virtual sessions, university admissions events.

EDUCATION

Oct 2017 – Apr 2022 **PhD in Biological Sciences, University of Cambridge / MRC LMB**
Thesis: Circadian regulation of protein homeostasis

Sept 2013 – Jul 2017 **BSc in Molecular Cell Biology** with a year in Europe**, University of York, UK**
Thesis: The role of protein glycosylation in mesenchymal stem cell differentiation
First class honours with distinction (82 weighted average)

KEY SKILLS AND TRAINING

- **Bioinformatics and programming skills**:
  - Custom data analysis and visualisation with R (advanced, proficiency with tidyverse and BioConductor packages), Python (intermediate); initial training in machine learning; version control (git/github)
  - Statistical analysis of -omics data, incl. differential expression analysis and multivariate modelling (e.g. LIMMA, mixed models, clustering algorithms)
  - Biological network, pathway, gene ontology analysis; data integration with public databases (e.g. with STRING/Cytoscape, KEGG)
  - Proteomics analysis, incl. LC-MS/MS DDA and DIA raw mass spectra processing and peptide identification strategies in commercial and open-sources software; quantitative analysis of label-free, SILAC, TMT, and pulsed-SILAC-TMT proteomics data
  - PTM analysis, incl. phosphoproteomics, proteoform analysis
  - Familiarity and experience with RNAseq, genomics, glycomics, metabolomics data; multiomics integration
  - Image processing and analysis (Fiji/ImageJ)
- **Other computer skills**: full proficiency in MS Office365 and Google Suite, database software (Filemaker), web management, AI tools
- **Laboratory skills**: extensive hands-on experience and understanding of cell culture (incl. stem cells, 3D models, cancer models) and cell assays; protein biochemistry; molecular genetics; microscopy; FACS
- **Communications**: writing, editing, and oral presentations for academic and non-academic audiences
- **Training**: preparation of teaching materials, facilitation, delivery of virtual and in-person classes
- **Languages**: English (fluent); French, German (intermediate); Latvian, Russian (fluent)
- **Other transferable**: problem solving, critical thinking; teamwork; project coordination; event organisation

Recent training courses completed

2022, 2024 **EuBIC-MS** (European Bioinformatics Community for Mass Spectrometry) Winter School, incl workshops and keynotes on proteomics and metabolomics data analysis

2015 – 2022 Variety of workshops run by University of Cambridge, and MOOC courses on bioinformatics

SELECTED AWARDS & PUBLICATIONS

2022 Excellence Award (Society for Research of Biological Rhythms – SRBR) – award of $600 for presentation at SRBR 2022 conference (~5 awards given out, selected from ~500 submitted abstracts)

2020 Merit Award (SRBR) – award of $300 for (online) presentation at SRBR 2020 conference

2017 LMB Scholarship (Medical Research Council) – full paid tuition and living expense stipend for 3.5 years for PhD study at the University of Cambridge and MRC Laboratory of Molecular Biology (LMB)

2017 Top Project award (Royal Society of Biology) for the best undergraduate final year project

Publications

E. Seinkmane, et al., Circadian regulation of protein turnover and proteome renewal. *EMBO J* (**2024**)

J. Watson, E. Seinkmane, et al., Rapid changes in protein condensation buffer intracellular water against osmotic and thermal challenge**,** *Nature* (**2024**)

D. Wong, E. Seinkmane, et al., CRYPTOCHROMES promote daily protein homeostasis. *EMBO J.* (**2022**).

A. Stangherlin, E. Seinkmane, J. O'Neill, Understanding circadian regulation of mammalian cell function, protein homeostasis, and metabolism. *Curr. Opin. Syst. Biol.* (**2021**).

A. Stangherlin, […], E. Seinkmane, […], et al., Compensatory ion transport buffers daily protein rhythms to regulate osmotic balance and cellular physiology. *Nat. Commun.* (**2021**).

M. Putker, D. Wong, E. Seinkmane, et al., CRYPTOCHROMES confer robustness, not rhythmicity, to circadian timekeeping. *EMBO J.* (**2021**)

K. Wilson, […], E. Seinkmane, et al., Glycans modify mesenchymal stem cell differentiation to impact on the function of resulting osteoblasts. *J. Cell Sci.* (**2018**)

N. Hoyle, E. Seinkmane, et al., Circadian actin dynamics drive rhythmic fibroblast mobilization during wound healing. *Sci. Transl. Med.* (**2017**)

N. Rzechorzek, […], E.Seinkmane, et al., Circadian clocks in human cerebral organoids. *bioRxiv* (**2024**)