EFFIE KLIMI

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RESEARCH

PhD Research | Queen's Medical Research Institute, The University of Edinburgh, UK (Oct 2019 - Jul 2024)

- Discovery and development of novel adenovirus-based miRNA therapeutics for vein graft disease Therapeutic discovery, gene therapy • Identified the top-performing miRNA candidates from a high-throughput fluorescent phenotypic screening in collaboration with Prof Mauro Giacca at King's College London and evaluated them as potential therapeutics.
 - Designed and tested viral vectors expressing candidate miRNAs in cells.
 - Tested the novel chimeric adenovirus Ad20/42/42 as a delivery vector in vascular cells and tissue.

Discovery and study of novel endogenous miRNA/host gene loci in vascular disease • RNA & computational biology

- Developed various transcriptomics and genomics computational biology pipelines.
- Analyzed time-series omics data and integrated multiple omics datasets.
- Performed dissection of the MEST/MiR335 locus and explored the role of each of its compartments in vascular pathophysiology.

Also involved in:

- A project on pro-angiogenic extracellular vesicles derived from a stem cell-derived endothelial cell product (published here).
- · Training new lab members (students and postdocs) and authoring manuscripts.

PhD Industrial partner collaboration: Viral vector production | Batavia Biosciences, Leiden NL (Oct 2019 - Jul 2024)

- · My PhD was co-funded by the viral vector CDMO Batavia Biosciences, involving collaboration with their teams in the Netherlands and the USA.
- Designed adenoviral vector plasmids with the Batavia team based in Woburn, MA
- Received training in the generation, propagation, and quality control of clinical-grade adenoviral vectors on-site in Leiden, NL. Integrated into the R&D team, acquiring training in GMP guidelines, and quality assurance.

Honours Project (BSc Genetics) | Medical Research Council's Genome Damage and Stability Centre, University of Sussex, UK (Sep 2018 - Feb - 2019)

- Protein structure-function analysis of the DNA helicase factor Cdc45 in S. pombe. Hands-on training in molecular genetics & computational biology.
 S. pombe culture and Cre-lox-mediated insertion of Cdc45 mutants generated by error-prone PCR & tertiary protein structure visualization of temperature-sensitive Cdc45 mutants.
- Research Assistant | Evolution, Behaviour and Environment Department, University of Sussex, UK (Jun Sep 2018)
 - Used single nucleotide polymorphism data from the 1000 genomes project and de novo mutation data from multiple studies to estimate the variation in
 effective population size across the human genome.

PROJECTS

Automated Computational Biology Paper Reproducibility CLI & API (Built internally in 2024, Launched publicly in 2025)

- Designed and implemented an LLM-backed API that extracts, structures and thoroughly annotates text from scientific paper PDFs/DOIs. Useful for linking methods to results (text and figures) and reproducing published analyses automatically.
- Built an Oclif + TypeScript CLI that calls this API to scaffold both a Conda environment and runnable code snippets, automating local replication of parts of published bioinformatics analyses.
- Published under my open-source tool collection (Drylab). CLI is on homebrew (GitHub repo).

My Substack, "Effie's Blog" (Launched in 2024)

- · Essays on technological progress, gene therapy, meta-science, research integrity, occasionally history and ancient texts.
- Selected posts: "In defence of the woman who went viral for not understanding mirrors" (most popular piece, 149 likes), "Who will bring scientific progress forward?" and "Heroes in the academic margins".

Minimalistic Hebrew learning app sefirim.com (Launched in 2024)

• Built a web app for studying Hebrew after finding no tools that fit my approach.

EDUCATION

- PhD Cardiovascular Science | Queen's Medical Research Institute, University of Edinburgh (Oct 2019 Dec 2024)
- BSc Genetics (Result: First Class) | School of Life Sciences, University of Sussex (Sept 2016 Jun 2019)

MANUSCRIPTS · PRESENTATIONS · TALKS

- "Functional screening identifies novel miRNAs inhibiting Vascular Smooth Muscle Cell proliferation" Joint 1st author (2024) doi.org/ 10.1101/2024.04.04.587890
- "Vascular smooth cell function and dysfunction controlled by non-coding RNA" Joint 1st author, British Journal of Pharmacology (2024) doi.org/ 10.1111/bph.16409
- "Extracellular vesicles from a human embryonic stem cell-derived endothelial cell product induce angiogenesis with high efficiency at very low input and contain miRNAs with novel proangiogenic function" 5th author, Molecular Therapy (2024) doi.org/10.1016/j.ymthe. 2023.11.023
- "Functional screening identifies novel miRNAs inhibiting Vascular Smooth Muscle Cell proliferation" Cardiovascular Research Institute Maastricht. Talk, virtual (2023)
- "Investigating miRNAs regulating vascular smooth muscle cell proliferation" Keystone Symposia "Small Regulatory RNAs: From Bench to Bedside" (won award from the NIH/NCI). Poster presentation, Santa Fe, NM (2022). Abstract won an award (grant) by the NIH-NCI.
- "miR-335/MEST: a novel potential regulator of vascular smooth muscle cell pathophysiology" Centre for Cardiovascular Science Symposium. Poster presentation, Edinburgh, UK (2022)
- "Development of a miRNA-based therapy aimed at blocking proliferation of vascular smooth muscle cells" Centre for Cardiovascular Science Symposium. Poster presentation, Edinburgh, UK (2021)