CENK **CELIK**

Research Fellow, ***University College London***

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Computational biologist with past hands-on experimental training, investigating how tumour cells enter and exit quiescent states. My research programme applies ecological frameworks to predict phenotypic transitions in cancer, combining spatial transcriptomics method development with mechanistic validation. I aim to establish an independent research group developing predictive models of tumour plasticity to identify therapeutic vulnerabilities in resistant cell populations.

Professional Experience

Research Fellow – *University College London*, UK — Jun 2023 – present

- Developed analytical framework for spatial -omics biology
- Led independent research programme on G0 arrest in breast cancer, integrating bulk, single-cell and spatial transcriptomics across multiple cohorts
- Contributed to multiple projects (AI models for EMT in breast cancer, LLG, CRC, TAMs in breast cancer) within the group and collaborated with external groups
- Co-supervised 3 MSc thesis students and mentored 2 PhD students through weekly one-on-one meetings

Research Fellow – *Nanyang Technological University*, Singapore — Mar 2021 – May 2023

- Led a project researching *in vivo* and *in vitro* host-pathogen synergy in wound infection
- Conducted and analysed next-generation sequencing data by developing pipelines
- Supported and supervised undergraduate and PhD students
- Used *C. elegans* and mouse models for different projects focusing on pathologies of ER stress
- Drafted, edited, revised and contributed data to papers for submission in high-impact journals (2/7 first author)
- Trained new research staff/students

Research Assistant – *National University Hospital System*, Singapore — Nov 2019 – Aug 2020

- Planned, modified and executed research techniques, procedures and tests for nano-fibrous scaffold fabrication
- Performed statistical, qualitative and quantitative analysis
- Mentored new research staff

Graduate Assistant – *National University of Singapore*, Singapore — Jan 2016 – May 2018

- Taught undergraduates the fundamentals of cell culture techniques for collecting, analysing and reporting data
- Mentored master's students throughout all phases of their research projects

Education

PhD in Medicine – *National University of Singapore*, Singapore — Aug 2015 – Aug 2020

- Researched scaffold-mediated stem cell chondrogenesis by pulsed electromagnetic fields
- Published a first-author research article and contributed to another research article
- Presented at two international conferences
- Awarded Singapore International Graduate Award scholarship by NUS (~S$200,000)
- Awarded Young Orthopaedic Researcher Award by APOA Sports Meeting '19
- Awarded NUS Researcher Travel Grant by the National University of Singapore
- Wrote a first-author book chapter on hydrogels

MSc in Bioengineering – *Ege University*, Turkey — Jul 2012 – May 2015

- Produced and characterised hybrid tissue scaffold approaches for 3D vascularised bone tissue
- Awarded research scholarship on TUBITAK 1002 and TUBITAK Career Grants

BSc in Bioengineering – *Ege University*, Turkey — Sep 2007 – Jun 2012

- Received Republic of Turkey Prime Minister Scholarship (4 years)
- Awarded and administered TUBITAK 2209 University Students Research Projects Support Program

Publications

Research articles

- Tan AMZ, **Celik C**, … , Thibault G, Kline KA (2026). *Enterococcus faecalis* redox metabolism activates the unfolded protein response to impair wound healing. *Sci Adv. eaeb5297.* [doi: 10.1126/sciadv.aeb5297]
- Withnell E, **Celik C**, Secrier M (2025). Integrative spatial modelling of cellular plasticity using graph neural networks and geostatistics. *bioRxiv.* [doi: 10.1101/2025.09.24.678189]
- **Celik C*** & Secrier M (2025). EnrichMap: Spatially informed enrichment analysis for functional interpretation of spatial transcriptomics. *bioRxiv*. [doi: 10.1101/2025.05.30.656960] **corresponding author*

- da Silva RAG, Tien BYQ, Hsien PNK, **Celik C**, … , Thibault G, Chen J, Kline KA (2025). *Enterococcus faecalis*-derived lactic acid facilitates persistent and polymicrobial wound infections by suppressing macrophage activation. *bioRxiv*. [doi: 10.1101/2025.01.31.635924]
- **Celik C**, … , Labbadia J, Secrier M (2025). Balancing tumour proliferation and sustained cell cycle arrest through proteostasis remodelling drives immune niche compartmentalisation in breast cancer. *bioRxiv*. [doi: 10.1101/2025.01.08.632014]
- **Celik C**, … , Kline KA, Thibault G (2024). Decoding complexity of delayed wound healing following *Enterococcus faecalis* infection. *eLife* 13:RP95113. [doi: 10.7554/eLife.95113.3]
- Kaliya-Perumal AK, **Celik C**, … , Ingham PW (2024). Genetic regulation of injury induced heterotopic ossification in adult zebrafish. *Dis Model Mech* dmm.050724. [doi: 10.1242/dmm.050724]
- Dudkevich R, Koh JH, Beaudoin-Chabot C, **Celik C**, … , Thibault G, Henis-Korenblit S (2022). Neuronal IRE-1 coordinates an organism-wide cold-stress response by regulating fat metabolism. *Cell Reports* 41, 111739. [doi: 10.1016/j.celrep.2022.111739]
- Beaudoin-Chabot C, Wang L, **Celik C**, … , Thibault G (2022). The unfolded protein response reverses the effects of glucose on lifespan in chemically-sterilised *C. elegans*. *Nat Commun* 13, 5889. [doi: 10.1038/s41467-022-33630-0]
- Yang Z, **Celik C**, Parate D, Franco-Obregón A, Lee EH (2022). The application of pulsed electromagnetic field for cartilage regeneration. *Tissue Eng Part A* 28, S-365. [doi: 10.1089/ten.tea.2022.29025.abstracts]
- **Celik C**, Franco-Obregón A, Hui JHP, Lee EH & Yang Z (2021). Directionalities of magnetic fields and topographic scaffolds synergise to enhance MSC chondrogenesis. *Acta Biomater* 119, 169-183. [doi: 10.1016/j.actbio.2020.10.039]
- Parate D, Kadir ND, **Celik C**, … , Franco-Obregón A & Yang Z (2020). Pulsed electromagnetic fields potentiate the paracrine function of mesenchymal stem cells for cartilage regeneration. *Stem Cell Res & Ther* 11:46. [doi: 10.1186/s13287-020-1566-5]
- Cetmi SD, … , **Celik C** & Oncel SS (2019). Preparation of electrospun polycaprolactone nanofiber mats loaded with microalgal extracts. *Eng Life Sci* 19:691-699. [doi: 10.1002/elsc.201900009]
- Duman OM, **Celik C**, Sarıkanat M & Sendemir A (2014). Investigation of central nervous system neurons under mechanical strain: An *in vitro* traumatic brain injury model. *18th National Biomedical Engineering Meeting*, 1-4. [doi: 10.1109/biyomut.2014.7026384]

Reviews & Book Chapters

- **Celik C**, Pan S, Withnell E, Lam HW, Secrier M (2025). Decrypting cancer's spatial code: from single cells to tissue niches. *Mol Oncol*. [doi: 10.1002/1878-0261.70100]
- **Celik C**, Lee SYT, Yap WS, Thibault G (2023). Endoplasmic reticulum stress and lipids in health and disease. *Progress in Lipid Research* 8, 101198. [doi: 10.1016/j.plipres.2022.101198]
- **Celik C**, Mogal VT, Hui JHP, Loh XJ & Toh WS (2018). Injectable Hydrogels for Cartilage Regeneration. In: Thakur V, Thakur M (eds) Hydrogels. *Gels Horizons: From Science to Smart Materials*. Springer, Singapore. [doi: 10.1007/978-981-10-6077-9_12]
- Karaman O, **Celik C** & Sendemir A (2016). Self-Assembled Biomimetic Scaffolds for Bone Tissue Engineering. In Management Association, I. (Ed.), *Biomedical Engineering: Concepts, Methodologies, Tools and Applications*, 476-504, Hershey, PA: IGI Global. [doi: 10.4018/978-1-5225-3158-6.ch021]

Invited talks

- **Celik C** (10th May 2025). Spatial evolution of proliferative and arrested niches in breast cancer. *AI in Pharma*, Hacettepe University, Ankara, Türkiye
- **Celik C** (23rd Sep 2024). Internal and external regulation of cell cycle arrest in breast cancer. *Izmir Biomedicine and Genome Centre*, Izmir, Türkiye

Outreach

- **Celik C** (14th Feb 2026). Use of artificial intelligent in cancer research. *Norwich Science Festival*, Norwich, UK
- **Celik C** (10-17 Aug 2025). Life at the single-cell and spatial scale. *Bootcamp,* Bilimler Köyü, Foça, Türkiye
- **Celik C** (Organiser; Dec 2024 - Mar 2025). Computational Research Exchange Cancer Network, *UCL*, London, UK
- **Celik C** (11-18 Aug 2024). Art of ATGC: Genetic data analysis & visualisation. *Bootcamp,* Bilimler Köyü, Foça, Türkiye

Proceedings

- **Celik C**, Withnell E, Secrier M (7th Oct 2024). Intrinsic and extrinsic factors influencing G0 cell cycle arrest in breast cancer [Selected talk]. *Crick Cancer Research Symposium 2024*, London, UK
- **Celik C**, Withnell E, Secrier M (1st May 2024). Unravelling internal and external regulatory mechanisms of cell cycle arrest in breast cancer [Poster]. *UCL Cancer Symposium 2024*, London, UK
- **Celik C**, Secrier M (24-25 Jan 2024). Deciphering the interplay between cell cycle arrest and tumour microenvironment in breast cancer [Selected talk & Poster]. *Festival of Genomics & Biodata*, London, UK

- **Celik C**, Secrier M (8-10 Oct 2023). Deciphering the interplay between cell cycle arrest and tumour microenvironment in breast cancer: Insights from single-cell data [Poster]. *4th Crick International Cancer Conference*, London, UK
- Lee STL, **Celik C**, … , Kline KA, Thibault G (3-7 Dec 2022). Dissecting the synergistic role of the unfolded protein response in wound infections [Poster & Talk]. *ACSB & EMBO Meeting*, Washington DC, USA
- **Celik C**, Yang Z, Franco-Obregón A, Hui JHP (4-7 Apr 2019). Altering MSC chondrogenesis by PEMF [Talk]. *APOA Sports Meeting 19*, Kuala Lumpur, Malaysia
- **Celik C**, Yang Z, Franco-Obregón A, Hui JHP (9-11 Sep 2018). Enhancement of MSC chondrogenesis by PEMF [Poster]. *5th TERMIS World Congress*, Kyoto, Japan
- Cetmi SD, … , **Celik C**, Sendemir A & Oncel SS (11th Nov 2015). Utilisation of microalgal extracts for construction of tissue scaffolds with electrospinning techniques [Poster]. *7th International Bioengineering Congress*, Izmir, Türkiye
- Duman OM, … , **Celik C** & Sendemir A (11th Nov 2013). Fe_3O_4 reinforced polycaprolactone nanofibrous scaffolds [Poster]. *VIth International Bioengineering Congress: Human Welfare*, Kusadasi, Türkiye
- **Celik C**, Karaman O, Sendemir A (11th Nov 2013). More than a picture: Biomedical Illustration [Talk]. *19th International Biomedical Science and Technology Symposium*, Kusadasi, Türkiye
- **Celik C**, Gorgun C, Sendemir A (11th Nov 2013). Cell viability of keratinocytes on electrospun Spirulina/PCL composites [Poster]. *19th International Biomedical Science and Technology Symposium*, Kusadasi, Türkiye
- Duman OM, … , **Celik C** & Sendemir A (9th Sep 2013). PCL/Fe_3O_4 Scaffold Production with Electrospinning [Oral]. *Advanced Materials World Congress 2013*, Cesme, Türkiye
- Serdengecti C, … , **Celik C**, Sendemir A & Seki Y (4th Apr 2013). Production and analysis of parameters affect morphological characters of chitosan nanospheres [Poster]. *1st Ege University Nanotechnology Days*, Izmir, Türkiye
- Duman OM, **Celik C**, Minaz MC, Sendemir A (4th Apr 2013). Fabrication of PEO/Fe_3O_4 composite tissue scaffolds by electrospinning [Poster]. *1st Ege University Nanotechnology Days*, Izmir, Türkiye
- Demirkaya C, **Celik C**, … , Sendemir A (5th May 2012). Applications of microalgae for tissue engineering [Oral]. *Marine Biotechnology and Genomics Workshop*, Bodrum, Türkiye
- **Celik C**, Demirkaya C, … , Sendemir A (11th Nov 2011). Effects of microalgae reinforcement on biocompatibility and mechanical properties of tissue engineering scaffolds [Talk]. *1st National Aegean Composite Materials Symposium*, Selcuk, Türkiye

Teaching Experience

- Life at the single-cell and spatial scale. *Bootcamp* (10-17 Aug 2025) at Bilimler Köyü, Foça, Türkiye
- Art of ATGC: Genetic data analysis and visualisation. *Bootcamp* (11-18 Aug 2024) at Bilimler Köyü, Foça, Türkiye
- Graduate Teaching Assistantship Programme (2016 - 2018) at National University of Singapore, Singapore

Technical Skills

Computational: Python, *R, Bash,* Cell Ranger, single-cell RNA-seq (scanpy, Seurat), spatial transcriptomics (Visium, Visium HD, Xenium, GeoMx), version control (GitHub, .Rmd, ReadTheDocs), Affinity Designer/Photo
Experimental: Bulk/single-cell RNA-seq library preparation, qPCR, western blot, cell culture,ilmaging, immunofluorescence/histochemistry, mouse & rat handling, viraltransduction, primer design, flow cytometry

Memberships

- **The British Association for Cancer Research** – Member — Oct 2025 – present
- **The European Association for Cancer Research** – Member — Feb 2024 – present
- **The Genetics Society UK** – Member — Aug 2023 – Aug 2024
- **Society for Cell Biology Singapore** – Member — Sep 2022 – May 2023
- **Diversity, Inclusion and Equality at NTU School of Biological Sciences** – Member — Mar 2022 – May 2023

Certifications

- **Responsible Care & Use of Laboratory Animals** – SingHealth, Apr 2021, ID: SEMC/RCULAC/2021/040
- **Genomic Data Science Specialisation** – John Hopkins University, Sep 2020, ID: D7S7D536DXDD
- **Data Analysis for Life Science** – HarvardX, Aug 2020, ID: a1cb1feb86a24a6b8d28873249cf1bad
- **Python Data Science** – edX & IBM, Jun 2020, ID: 8e35eee7e19b4071a2a1109e599b8800

Awards, Honours & Funding

- **Crick Cancer Symposium 2024** – Selected talk, London — Oct 2024
- **Poster Presentation Winner** – Festival of Genomics & Biodata, London — Jan 2024
- **Translational Researcher Programme** – 10X Genomics, *Inc*., Singapore — Feb 2022
- **Young Orthopaedic Researcher** – APOA Sports Meeting '19, Kuala Lumpur — Apr 2019
- **Researcher Travel Grant** – National University of Singapore, Singapore — Sep 2018
- **Singapore International Graduate Award** (S$200,000) – NUS, Singapore — Aug 2015 – Aug 2019
- **Research Scholarship** – TUBITAK 1002, Türkiye — Jun 2014 – May 2015

- **Research Scholarship** – TUBITAK Career Grant, Türkiye Sep 2012 – Sep 2013
- **Research Project Support Programme for Undergraduate Students** (₺1,000) – Türkiye Sep 2011 – Jan 2012
- **Prime Minister Scholarship** – General Directorate of Credit & Dormitories Agency, Türkiye Jan 2008 – Jun 2012

Volunteering

- **Life at the single-cell and spatial scale (bootcamp)** – Bilimler Köyü, Türkiye 11–17 Aug 2025
- **Computational Research Exchange Cancer Network** – UCL Dec 2024 – Mar 2025
- **Art of ATGC: Genetic Data Analysis and Visualisation (bootcamp)** – Bilimler Köyü, Türkiye 12–18 Aug 2024
- **Bioinformatics Instructor (bootcamp)** – KizCode Oct 2021 – Jan 2024
- **Executive Committee Member** – Singapore-Turkey Friendship Association May 2016 – Jun 2018
- **Organising Committee** – 19th International Biomedical Science & Technology Symposium Nov 2012 – Dec 2012
- **Organising Committee** – 6th International Bioengineering Congress Nov 2012 – Dec 2012