Assoc. Prof. AHMET ACAR

Personal Information

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International Researcher IDs
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ScopusID: 57212498766
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Biography

During my undergraduate studies, I visited Prof Robert A. Weinberg's Laboratory at Massachusetts Institute of Technology, Cambridge, MA, US. as a summer student. After receiving my BSc degree, I won a competitive Cancer Research UK scholarship to enrol in a Ph.D. program at Cancer Research UK Manchester Institute, Manchester, UK, between 2008 and 2012. During my Ph.D., I focused on the evolution of cancer-associated fibroblasts in breast cancer mediated by crosstalk of signaling pathways namely Notch, TGFb, and SDF1. Following my Ph.D., I did a postdoc at the Faculty of Biology, Medicine, and Health, University of Manchester (UoM) for 3 years. My research there focused on the crosstalk of Wnt and Notch signaling and how they regulate each other. Next, I moved to the Institute of Cancer Research in London for the next 4 years where I switched my focus to cancer evolution and genomics to understand the underlying mechanisms of treatment resistance by designing experimental model systems consisting of large Hyperflasks, single-cell barcoding, and patient-derived organoids.

At the beginning of 2020, I moved to Turkey to start my own research group in Ankara's Middle East Technical University (METU) as part of an International Fellowship for Outstanding Researchers Program administrated by TUBITAK. In addition to my academic journey, I am the founder and CEO of a start-up called HistoCan at METU Teknopark since 2021.

Education Information

Doctorate, The University of Manchester, Faculty of Medicine, Cancer Sciences, United Kingdom 2008 - 2012
Undergraduate, Middle East Technical University, Faculty of Arts and Sciences, Department of Biology, Turkey 2002 - 2007

Research Areas

Medicine, Basic Pharmaceutics Sciences, Professional Sciences, Pharmaceutics Technology, bioinformatics, Bioinstrumentation and Microelectromechanical Systems (MEMS), Biomedical Image Processing, Biomedical Image Processing, Clinical Engineering, Telemedicine, Telemedicine, Biophysics, Biochemistry, Bioinformatics, Biological Modelling, Biological Databases, Genetic Disorders, Genetic Engineering, Genomics, Animal Molecular Genetics, Moleculer Biology of Cancer, Microbial Genetics, Evolution, Computer Science, Game Theory, Health Sciences, Natural Sciences

Academic Titles / Tasks

Assistant Professor, Middle East Technical University, Faculty of Arts and Sciences, Department of Biology, 2021 - Continues
Assistant Professor, Middle East Technical University, Faculty of Arts and Sciences, Department of Biology, 2020 - 2021

Courses

MOLECULAR BIOLOGY, Undergraduate, 2020 - 2021
Molecular and Cellular Biology I, Undergraduate, 2021 - 2022, 2020 - 2021
Biology of Cancer, Postgraduate, 2021 - 2022

Published journal articles indexed by SCI, SSCI, and AHCI

I. **Characterization of dabrafenib-induced drug insensitivity via cellular barcoding and collateral sensitivity to second-line therapeutics**
Baygin R. C., Yilmaz K. C., ACAR A.
Scientific Reports, vol.14, no.1, 2024 (SCI-Expanded)

II. **Tumor evolution metrics predict recurrence beyond 10 years in locally advanced prostate cancer**
Fernandez-Mateos J., Cresswell G. D., Trahearn N., Webb K., Sakr C., Lampis A., Stuttle C., Corbishley C. M., Stavrinides V., Zapata L., et al.
Nature Cancer, vol.5, no.9, pp.1334-1351, 2024 (SCI-Expanded)

III. **Exploiting Matrix Stiffness to Overcome Drug Resistance**
Aydin H. B., ÖZÇELİKKALE A., ACAR A.
ACS BIOMATERIALS SCIENCE & ENGINEERING, vol.10, no.8, pp.4682-4700, 2024 (SCI-Expanded)

IV. **Optimizing cancer therapy: a review of the multifaceted effects of metronomic chemotherapy**
Basar O. Y., Mohammed S., Qoronfleh M. W., ACAR A.
FRONTIERS IN CELL AND DEVELOPMENTAL BIOLOGY, vol.12, 2024 (SCI-Expanded)

V. **Current Technologies and Future Perspectives in Immunotherapy towards a Clinical Oncology Approach**
Adhikary S., Pathak S., Palani V., ACAR A., Banerjee A., Al-Dewik N. I., Essa M. M., Mohammed S. G. A. A., Qoronfleh M. W.
BIOMEDICINES, vol.12, no.1, 2024 (SCI-Expanded)

VI. **Investigation of evolutionary dynamics for drug resistance in 3D spheroid model system using cellular barcoding technology**
Yalcin G. D., Yilmaz K. C., DİLBER T., ACAR A.
PLoS ONE, vol.18, no.9 September, 2023 (SCI-Expanded)

VII. **Editorial: Cancer evolution**
Ermini L., Mallo D., Kleftogiannis D., ACAR A.
FRONTIERS IN GENETICS, vol.14, 2023 (SCI-Expanded)

VIII. **Pan-Cancer Analysis of the COVID-19 Causal Gene SLC6A20**
ACAR A.
ACS OMEGA, vol.8, no.14, pp.13153-13161, 2023 (SCI-Expanded)

IX. **Immune selection determines tumor antigenicity and influences response to checkpoint inhibitors**
Zapata L., Caravagna G., Williams M. J., Lakatos E., AbdulJabbar K., Werner B., Chowell D., James C., Gourmet L., Milite S., et al.
NATURE GENETICS, vol.55, no.3, pp.451-460, 2023 (SCI-Expanded)

X. **Identification of collateral sensitivity and evolutionary landscape of chemotherapy-induced drug resistance using cellular barcoding technology**

Danisik N., Yilmaz K. C., ACAR A.
Frontiers in Pharmacology, vol.14, 2023 (SCI-Expanded)

XI. **Increased TRIM31 gene expression is positively correlated with SARS-CoV-2 associated genes TMPRSS2 and TMPRSS4 in gastrointestinal cancers**
Temena M. A., ACAR A.
SCIENTIFIC REPORTS, vol.12, no.1, 2022 (SCI-Expanded)

XII. **Inhibition of Wnt signalling by Notch via two distinct mechanisms**
Acar A., Hidalgo-Sastre A., Leverentz M. K., Mills C. G., Woodcock S., Baron M., Collu G. M., Brennan K.
SCIENTIFIC REPORTS, vol.11, no.1, 2021 (SCI-Expanded)

XIII. **Systems Biology and Experimental Model Systems of Cancer**
Yalcin G. D., Danisik N., Baygin R. C., Acar A.
JOURNAL OF PERSONALIZED MEDICINE, vol.10, no.4, pp.1-12, 2020 (SCI-Expanded)

XIV. **Subclonal reconstruction of tumors by using machine learning and population genetics**
Caravagna G., Heide T., Williams M. J., Zapata L., Nichol D., Chkhaidze K., Cross W., Cresswell G. D., Werner B., ACAR A., et al.
NATURE GENETICS, vol.52, no.9, pp.898-919, 2020 (SCI-Expanded)

XV. **Exploiting evolutionary steering to induce collateral drug sensitivity in cancer**
Acar A., Nichol D., Fernandez-Mateos J., Cresswell G. D., Barozzi I., Hong S. P., Trahearn N., Spiteri I., Stubbs M., Burke R., et al.
NATURE COMMUNICATIONS, vol.11, no.1, 2020 (SCI-Expanded)

XVI. **Evolutionary dynamics of residual disease in human glioblastoma**
Spiteri I., Caravagna G., Cresswell G. D., Vatsiou A., Nichol D., ACAR A., Ermini L., Chkhaidze K., Werner B., Mair R., et al.
ANNALS OF ONCOLOGY, vol.30, no.3, pp.456-463, 2019 (SCI-Expanded)

XVII. **The Spatiotemporal Evolution of Lymph Node Spread in Early Breast Cancer**
Barry P., Vatsiou A., Spiteri I., Nichol D., Cresswell G. D., ACAR A., Trahearn N., Hrebien S., Garcia-Murillas I., Chkhaidze K., et al.
CLINICAL CANCER RESEARCH, vol.24, no.19, pp.4763-4770, 2018 (SCI-Expanded)

XVIII. **A Role for Notch Signalling in Breast Cancer and Endocrine Resistancesssss**
ACAR A., Simoes B. M., Clarke R. B., Brennan K.
STEM CELLS INTERNATIONAL, vol.2016, 2016 (SCI-Expanded)

XIX. **Anti-estrogen Resistance in Human Breast Tumors Is Driven by JAG1-NOTCH4-Dependent Cancer Stem Cell Activity**
Simoes B. M., O'Brien C. S., Eyre R., Silva A., Yu L., Sarmiento-Castro A., Alferez D. G., Spence K., Santiago-Gomez A., Chemi F., et al.
CELL REPORTS, vol.12, no.12, pp.1968-1977, 2015 (SCI-Expanded)

XX. **TGF-beta receptor type-2 expression in cancer-associated fibroblasts regulates breast cancer cell growth and survival and is a prognostic marker in pre-menopausal breast cancer**
Busch S., ACAR A., Magnusson Y., Gregersson P., Ryden L., Landberg G.
ONCOGENE, vol.34, no.1, pp.27-38, 2015 (SCI-Expanded)

XXI. **Dishevelled limits Notch signalling through inhibition of CSL**
Collu G. M., Hidalgo-Sastre A., ACAR A., Bayston L., Gildea C., Leverentz M. K., Mills C. G., Owens T. W., Meurette O., Dorey K., et al.
DEVELOPMENT, vol.139, no.23, pp.4405-4415, 2012 (SCI-Expanded)

XXII. **Experimental Generation of Carcinoma-Associated Fibroblasts (CAFs) from Human Mammary Fibroblasts**
Polanska U. M., ACAR A., Orimo A.
JOVE-JOURNAL OF VISUALIZED EXPERIMENTS, no.56, 2011 (SCI-Expanded)

XXIII. **Autocrine TGF-beta and stromal cell-derived factor-1 (SDF-1) signaling drives the evolution of tumor-promoting mammary stromal myofibroblasts**
Kojima Y., ACAR A., Eaton E. N., Mellody K. T., Scheel C., Ben-Porath I., Onder T. T., Wang Z. C., Richardson A. L.,

Weinberg R. A., et al.
PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA, vol.107, no.46, pp.20009-20014, 2010 (SCI-Expanded)

Articles Published in Other Journals

I. **Tumor-Microenvironment-on-Chip Platform for Assessing Drug Response in 3D Dynamic Culture**
Aydin H. B., Moon H., Han B., ÖZÇELİKKALE A., ACAR A.
Methods in molecular biology (Clifton, N.J.), vol.2764, pp.265-278, 2024 (Scopus)

II. **Integrative profiling of CEACAM1 in different malignancies with implications on the SARS-CoV-2 infection genes ACE2 and TMPRSS2**
Acar A.
Hacettepe Journal of Biology and Chemistry, vol.51, no.2, pp.1-10, 2023 (Peer-Reviewed Journal)

Books & Book Chapters

I. **Tumor-Microenvironment-on-Chip Platform for Assessing Drug Response in 3D Dynamic Culture**
Aydin H. B., Moon H., Han B., Ozcelikkale A., Acar A.
in: 3D Cell Culture, Zuzana Sumbalova Koledova, Editor, Springer Nature, London, pp.265-278, 2024

Activities in Scientific Journals

Frontiers in Systems Biology, Special Issue Editor, 2023 - Continues
FRONTIERS IN GENETICS, Special Issue Editor, 2021 - 2023

Memberships / Tasks in Scientific Organizations

COST, Member, 2023 - Continues, England
COST, Member, 2022 - Continues, Spain
COST, Member, 2022 - Continues, France
NIH/NCI Cancer Systems Biology Consortium , Associate Member, 2021 - Continues, United States Of America
EACR, Member, 2021 - Continues, Italy
MOKAD, Member, 2021 - Continues, Turkey
COST, Member, 2021 - 2022, Spain

Scientific Refereeing

FRONTIERS IN ONCOLOGY, Journal Indexed in SCI-E, December 2022
FRONTIERS IN ONCOLOGY, Journal Indexed in SCI-E, December 2022
FRONTIERS IN ONCOLOGY, Journal Indexed in SSCI, November 2022
FRONTIERS IN ONCOLOGY, Journal Indexed in SCI-E, October 2022
VIRUS RESEARCH, Journal Indexed in SCI-E, July 2022
FRONTIERS IN ECOLOGY AND EVOLUTION, Journal Indexed in SCI-E, June 2022
FRONTIERS IN CELL AND DEVELOPMENTAL BIOLOGY, Journal Indexed in SCI-E, March 2022
SCIENTIFIC REPORTS, Journal Indexed in SCI-E, March 2022
FRONTIERS IN ONCOLOGY, Journal Indexed in SCI-E, February 2022
FRONTIERS IN ONCOLOGY, Journal Indexed in SCI-E, January 2022

FRONTIERS IN ONCOLOGY, Journal Indexed in SCI-E, January 2022
FRONTIERS IN ONCOLOGY, Journal Indexed in SCI-E, January 2022
FRONTIERS IN ONCOLOGY, Journal Indexed in SCI-E, January 2022
FRONTIERS IN GENETICS, Journal Indexed in SCI-E, October 2021
SCIENTIFIC REPORTS, Journal Indexed in SCI-E, May 2021
FRONTIERS IN ONCOLOGY, SCI Journal, April 2021
TUMOR BIOLOGY, SCI Journal, January 2021
Turkish Journal of Biochemistry, Other journals, January 2021
TUBITAK Project, 2219 - Yurt Dışı Doktora Sonrası Araştırma Burs Programı, Middle East Technical University, Turkey, December 2020
SCIENTIFIC REPORTS, SCI Journal, March 2020

Metrics

Publication: 27
Citation (WoS): 1131
Citation (Scopus): 1183
H-Index (WoS): 12
H-Index (Scopus): 12

Awards

British Council Study in the UK Bilim ve Sürdürülebilirlik Ödülü, British Council, February 2024
Acar A., Mustafa Parlar Vakfi Arastirma Tesvik Odulu, Mustafa Parlar Vakfi, December 2023
Acar A., Molecular Cancer Research Association Award for Basic Cancer Researcher of the Year, Molecular Cancer Research Association , July 2022
Acar A., Aydin Dogan Foundation Ozlem Tureci & Ugur Sahin Molecular Biology and Genetics Research Award, Aydin Dogan Vakfi, July 2022
Acar A., Bilim Akademisi Genç Bilim İnsanları (BAGEP) Odulu 2022, Bilim Akademisi, April 2022
Acar A., 2021 TÜBA-Üstün Başarılı Genç Bilim İnsanı Ödülü (GEBİP), Türkiye Bilimler Akademisi (Tüba), December 2021
Acar A., TÜSEB Aziz Sancar Tesvik Ödülü, Tüseb, October 2021