Maria Tsoumakidou, MD PhD

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Research Topics: Cancer, Adaptive Immunity, Immune Escape, Fibroblasts, Dendritic Cells, T cells, Immunotherapies, Cell Therapies, Tumors-on-Chip

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Dr. Tsoumakidou is a board-certified respiratory specialist, group leader at Biomedical Sciences Research Centre (BSRC) Alexander Fleming and associate professor of Physiology at the Medical School of the National and Kapodistrian University of Athens. The overarching goal of her studies has been to decipher the landscape of antigen-presenting cells in immune disorders with the aim of identifying new immunotherapeutic targets and advancing novel therapies.

Dr Tsoumakidou is emerging as a leader in the field of cancer immunology for her discovery of a novel subset of lung fibroblasts that present cancer antigens and provide survival signals to lymphocytes, refuting the conventional assumption that fibroblasts are immunosuppressive. She proposes a new concept in cancer immunity whereby anti-tumour CD4 T cells require interaction with antigen-presenting cells in tumor tissues, where tumor antigens reside.

Her early work on professional antigen presenting cells uncovered novel functions of inflammatory cytokines on lung dendritic cells (DCs) and a Wnt-1 tumor escape mechanism that is now considered therapeutic target. In her current research, she is investigating a rare subset of anti-tumor DCs where interferon-driven lysosomal death contributes to DC scarcity. Her work now involves testing innovative strategies to enhance DC longevity and strengthen anti-tumor immunity. Additionally, she is engaged in developing ex-vivo models to study human tumor responses for biomarker discovery and drug screening purposes.

Dr Tsoumakidou has published over 30 primary papers and reviews as lead author in high-profile journals (>4000 citations, h-index 27 Source: Google Scholar). She has been the recipient of several awards, among which the Clinical and Research Excellence Award by the Hellenic Thoracic Society. Dr. Tsoumakidou's contributions have been primarily centered in Greece. Her laboratory is supported by competitive grants from the European Commission and national sources. In 2023 she was awarded a Consolidator grant from the European Research Council (ERC) to harness antigen presenting fibroblasts for cancer immunotherapy.

Key References (2013-today)

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