

Maria Tsoumakidou, MD PhD



GROUP LEADER

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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 (2007) and a group leader at Biomedical Sciences Research Centre Fleming since 2019. BSRC Fleming is a top-ranked Greek non-profit research organization focusing on technological excellence. She received her MD in Medicine (2000) and her PhD in Immunology (2004) from the Crete Medical School. She has carried out postdoctoral training in Lung Immunopathology at Imperial College. The overarching goal of her studies has been to decipher the landscape of antigen-presenting cells in immune disorders.

Dr Tsoumakidou is emerging as a leader in the field of stromal 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 dendritic cells (DCs) and a tumor escape mechanism that is now considered therapeutic target. Her current work on a rare subset of anti-tumor DCs identified a type of cell death that explains DC scarcity and tests novel strategies to increase DC longevity and anti-tumor immunity. She is also interested in ex-vivo modeling of human tumor responses for biomarker discovery and drug screening. She coordinates an international consortium of academic and industrial leaders that work to develop the first bronchoscopic biopsies on chip.

Dr Tsoumakidou has published over 30 primary papers and reviews as lead author in high-profile journals. She has been the recipient of several awards, among which the Clinical and Research Excellence Award by the Hellenic Thoracic Society. Her laboratory is supported by several 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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