



Nawal Maria Boukli

Affiliate, Neurosurgery

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Dr. Nawal Boukli's research focuses on understanding how cells transition from adaptive to maladaptive stress responses, with a central emphasis on endoplasmic reticulum (ER) stress, unfolded protein response (UPR) signaling, and GRP78 as a master regulator of cell fate and survival. Her work has defined critical mechanistic links between GRP78-driven stress adaptation, metabolic reprogramming, and therapeutic resistance in glioblastoma (GBM), while advancing GRP78 as a translational therapeutic target through antibody-based anti-GRP78 strategies designed to disrupt tumor survival pathways. Her broader research program integrates molecular biology, quantitative multi-omics, cancer biology, and NeuroHIV to uncover stress-driven mechanisms underlying disease progression. In parallel, her NeuroHIV studies investigate how HIV-1 gp120 induces maladaptive ER stress responses that alter astrocyte–neuron communication, promote synaptic vulnerability, and contribute to neurodegenerative processes. Collectively, her work bridges cancer and neurodegeneration through a unifying framework centered on proteostasis disruption and chronic stress signaling.

In her project at Stanford University, awarded by The NIH Brain Initiative, Dr. Boukli is extending her research program using advanced spatial omics and neurobiology approaches to define astrocyte-specific ER stress domains and map how gp120-driven stress signaling becomes spatially organized within intact neural systems. This work aims to identify spatially resolved therapeutic targets and advance high-impact translational neuroscience studies.

Dr. Boukli is also recognized for her innovative teaching, scientific leadership, and commitment to mentorship. She has mentored more than 32 master's students, 8 Ph.D. students, and numerous undergraduate trainees, while developing student-centered scientific training and mentoring initiatives.

Following her election to the Association of Biomolecular Resource Facilities Executive Board in 2019, she launched the organization's first annual speed-mentoring initiative in 2020. She additionally serves as a reviewer for the National Institutes of Health Center for Scientific Review, including study sections focused on cancer therapeutics and biomarker development.

Selected Peer-Reviewed Publications:

<https://pubmed.ncbi.nlm.nih.gov/?term=nawal+boukli&sort=pubdate>