Induction of Actin-regulatory Proteins as a Potential Translational Strategy in Metastatic Breast Cancer

Directed cell migration plays an important role in embryonic development, wound healing, angiogenesis, immune response, cancer invasion and metastasis. Dynamic reorganization of actin cytoskeleton, a key aspect of cell migration, is regulated by the concerted actions of various classes of actin-binding proteins (ABPs), and some of these ABPs are fundamental drivers of actin-based cell motility. Altered expressions and activities of fundamental drivers of cell migration are correlated with aberrant cell motility in pathologic scenarios. Our main research interests are to 1) gain novel insights on how dysregulation of fundamental drivers of cell migration contributes to metastatic progression of solid cancers and pathological angiogenesis, and 2) develop translational strategies exploiting the pathways of dysregulation as means to suppress metastatic phenotype of cancer cells and angiogenesis-dependent pathology. This talk will focus on a) how profilin family of actin-binding proteins regulate different aspects of breast cancer progression, b) elucidation of signaling pathways that can be exploited to restore profilin expression in carcinoma cells and induce anti-cancer phenotypes, and c) translational effort involving profilin as a potential anti-cancer strategy.

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