

An epigenetic pathway specifies phenotype in breast cancer cells

Paul Wade, PhD

Laboratory of Molecular Carcinogenesis

Estrogen receptor alpha (ER- α) is a key regulatory molecule in mammary epithelial cell development and a critical prognostic indicator in breast cancer. Our laboratory has defined a molecular pathway downstream of ER that regulates important aspects of breast cancer cell physiology, shape and behavior. The receptor (ER- α) directs the synthesis of a regulatory component of a chromatin remodeling enzyme, the Mi-2/NuRD complex, which in turn participates in regulation of a variety of genes. This pathway ties action of estrogen receptor to growth properties and phenotypic characteristics of breast cancer cells. Further, elucidation of this epigenetic pathway has provided insights into how the local environment of breast cancer cells can influence their epigenome.