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Metastasis Upregulated Genes Have Distinct Function in C. elegans Cell Migrations.

S.A. Vetrone[1,2], M. Kato[2], P. Sternberg[2];
[1]Biology, Whittier College, Whittier, CA, [2]HHMI, Biology and Biological Engineering, California Institute of Technology, Pasadena, CA

Cell migration is vital for normal animal development but also contributes to the invasive spreading of early stage metastatic cancer. From two published databases, we complied 107 genes unregulated in either breast cancer or melanoma metastases and investigated their requirement in two *Caenorhabditis elegans* cell migrations: the male linker cell (LC) and hermaphrodite distal tip cells (DTC) which have similar functions as gonadal leader cells that undergo a complex migration while pulling non-motile followers. We performed an RNAi screen to identify genes implicated in normal LC and DTC migrations. Thirty-two genes from the metastasis list were required for the cell migration of which 13 genes effected the migration of both LC and DTC, 18 genes effected only LC migration, and 4 genes only DTC migration. The genes used by both cell types corresponded to genes involved in cell cycle activity, adhesion, cytoskeleton organization, protein degradation activity, spliceosome activity, ubiquitin-like modification and function, and peptidase inhibition. The genes used by only the LC corresponded to genes involved in adhesion, cytoskeletal organization, methyltransferase activity, metalloproteinase activity, and signaling. Those genes used by only DTC corresponded to genes involved in signaling, peptidase inhibition, and utrophin activity. The significant differences among the developmental cell migrations and the overlap in genes shared between the two metastases underscores the value of characterizing diverse genes and considering cell type in developing treatments.

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DIBUTYLTIN-INDUCED ALTERATIONS OF INTERLEUKIN 1 beta SECRETION FROM HUMAN IMMUNE CELLS.

S. Brown[1], S. Tehrani[2], M. Whalen[2];
[1]Biological Sciences, Tennessee State University, Nashville, TN, [2]Chemistry, Tennessee State University, Nashville, TN

Dibutyltin (DBT) is an organotin compound that is used as a stabilizer in polyvinyl chloride (PVC) plastics (including pipes that distribute drinking water and bottles) and as a de-worming agent in poultry. DBT is found in human blood samples, and DBT exposures alter the secretion of tumor necrosis factor alpha (TNFα) from lymphocytes. Interleukin 1 beta (IL-1β) is a pro-inflammatory cytokine that promotes cell growth, tissue repair, and immune response regulation. Produced predominately by both monocytes and macrophages, IL-1β appears to increase the invasiveness of certain tumors. The aim of the current study is to determine whether exposure to DBT alters the secretion of IL-1β from increasingly reconstituted preparations of human immune cells. We examined whether exposure to DBT