**Understanding cell-cell and cell-environment interactions**

Afshan Ismat, Ph.D.

University of St. Thomas, Saint Paul, MN

Cell migration is an essential process for the proper development of multicellular organisms. Most migrating cells need to travel through a dense extracellular matrix (ECM), a complex mixture of proteins and macromolecules that surround all cells and tissues. The extracellular protease *AdamTS-B* is expressed in both the embryonic trachea and wing imaginal disc. Loss of *AdamTS-B* in the trachea displays misshapen and shorter tracheal branches, whereas over-expression shows luminal cysts and extra long branches. We hypothesize that AdamTS-B is functioning in the tracheal lumen to allow proper cell elongation. Surprisingly, in the wing, gain and loss of *AdamTS-B* resulted in cell fate changes, functioning either through the EGFR or BMP pathways. We also examined more closely the role of *slit* in peripheral nervous system (PNS) neuronal migration. Through these studies we are starting to understand the complexities of cell-cell and cell-environment interactions.