1086-92-2241 **Shalla Hanson*** (shanson@smith.edu), Box 8952, Smith College, Northampton, MA 01063, and **Kelly Zaccheo**. *Modeling Zebrafish Spinal Cord Development.* Preliminary report.

Mitosis or cell division during nervous system development must be tightly regulated. In this project, we collaborated with a developmental biologist (M. Barresi, Smith College) in developing a mathematical model of the neural tube (spinal cord) development in zebra fish. Specifically, we look at the population of radial glial cells, a type of neuronal stem cells. The wild-type/normal cell line is compared with a mutant Kif11 cell line. Kiff11 is a crucial protein that is essential in pulling cells apart during mitosis, thus Kiff11 mutation would result in complete a mitotic arrest. We develop ordinary differential equation models of the cell division process and perform data fitting to match experimental data. We investigate the role of apoptosis (cell death) as well as other indirect feedback which affect the population of dividing radial glial cell. (Received September 25, 2012)