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Hannah L Callender* (hannah.callender@gmail.com), IMA, 400 Lind Hall, 207 Church St SE, Minneapolis, MN 55408, and **Hans G Othmer**. *A Model of Cellular Motility: Focusing on the "Feet" of the Cell.*

Cell motility is an essential process in the life cycle of many organisms, as it plays a crucial role in a variety of areas such as embryonic development, wound healing, the immune response, and cancer cell metastasis. Furthermore, errors during cell migration have serious consequences including mental retardation, vascular disease, tumor formation, and metastasis. Therefore, an understanding of the mechanism by which cells migrate may lead to the development of novel therapeutic strategies for controlling, for example, invasive tumor cells.

Cells adhere to and move across their surroundings via protein complexes known as "focal adhesions" (FAs). FAs serve both as mechanical links from the cell to its surroundings (acting in some ways as cellular feet) and as biochemical signaling hubs to concentrate and direct numerous signaling proteins within the cell. Here we present a mathematical model to describe the early dynamics of these focal adhesions in mammalian cells to determine the necessary components and the role of each in the growth and fate of the FAs. (Received September 12, 2008)