REU Report Outline

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Section 2 briefly describes the biological setting and terminology for the model. For further details, the reader is referred to the original work by Dr. Levine and associates [2], [3], and [4].

3 The Mathematical Model

The mathematical model which forms the basis of this work is due to Levine, Nilsen-Hamilton, and Sleeman [3]. It couples the ideas of endothelial cell movement with respect to enzyme kinematics and reinforced random walks. While the human body is a three dimensional object, the geometry of this project has been simplified to a one dimensional problem as a foundation for further research. This project focuses on the concentration or density of various biological el e hman[

$$= -\Delta t \sum_{L} \lambda_3 a_h^{n,k} \eta_h^{n,k}$$

At each timestep, the equations are solved in as uncoupled manner. That is, first they are solved for $u_h^{n,k+1}$, then used to solve for $v_h^{n,k+1}$, etc. This reduces t u r

order to more accurately represent this, the equations are modified to the following:

$$c_a = \frac{c}{1 + \nu_e \imath_a + \nu_4}$$