

1035-92-1732

**Andrew Lewis Matteson\*** ([drew.matteson@gmail.com](mailto:drew.matteson@gmail.com)), 1507 Maglothin, Bryan, TX 77802.

*An Enzyme Kinetic Model of Blood Island Formation.*

Blood Islands (BIs) are conglomerations of pre-vascular stem cells that form during vasculogenesis, a function critical to early vascular and hematopoietic development. Studies of knock-out, -up, and -down mice have implicated several factors in the proper development of BIs. These include GATA-2, VEGF, TGF $\beta$ , and many others. In this paper, a two dimensional model of BI formation is proposed from the enzyme kinetics of this process. All included effects have been demonstrated to be necessary through knockout studies. Deterministic simulations of the model show the formation of BI like structures in healthy and diseased states. (Received September 20, 2007)