

# **"An Enzyme Kinetic Model of Blood Island Formation"**

**by**

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Blood Islands are conglomerations of prevascular 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 blood islands. These include GATA-2, VEGF, TGF beta, and many others. In this paper, a model of blood islands formation is proposed from the enzyme kinetics of this process. Deterministic simulations of the model show the formation of blood island like structures in healthy and diseased states. Stochastic models and techniques to implement them are discussed.