1067-92-2284 **Shabnam Moobedmehdiabadi*** (mshabnam@gmail.com), Department of Mathematics, University of California Irvine, Irvine, CA 92697. *Lattice Gas Cellular Automata modeling of lineage dynamics and feedback control.*

We develop a general framework to model the dynamics of cell lineages. We specialize the model to lineages with two constituent, one that mimics the combined effect of stem cell (SC) and progenitor cell (CP) types while the other characterizes terminally differentiated (TD) cells. We first give a microscopic derivation of the model, then using averaging via mean field approximation, we give mesoscopic description of the model. We then derive a macroscopic description (PDE) of the model. We compare the approximations and investigate the speed and structure of invading front obtained by macroscopic PDE and associate LGCA models.

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