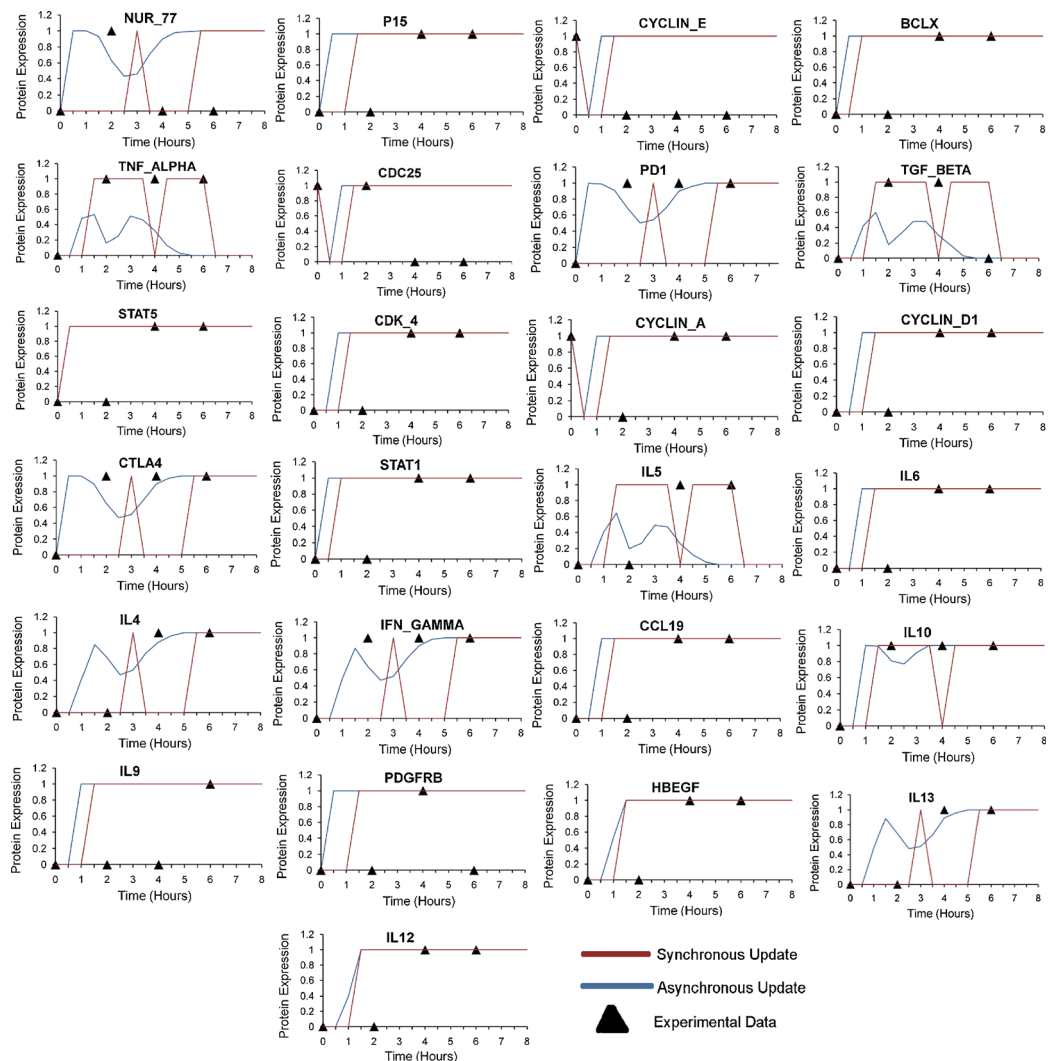


Temporal protein expression pattern in intracellular signalling cascade during T-cell activation: A computational study

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Supplementary material



Supplementary figure 1. Protein expression dynamics observed in Experiment, Synchronous and Asynchronous simulation.

Supplementary table 1. Functional classification of T-cell output proteins

CLASS	No. of molecules	List of molecules	Function	Reference
T-cell Proliferation	12	CYCLIN_A, CYCLIN_D1, CYCLIN_D2, CYCLIN_E, CDK_4 BCL2, BCLX FASL, TNF_ALPHA, CDC25, STAT5, P70	Cell cycle progression Anti-apoptosis T-cell proliferation, survival	Berridge 2014; Wells and Morawski 2014 Rogers <i>et al.</i> 2001; Watts 2010 Brennan <i>et al.</i> 1999; Nargi and Woodford-Thomas 1994; Shi <i>et al.</i> 2007; Suzuki <i>et al.</i> 2000; Welte 1999
Negative Regulator of T-cell Proliferation	7	P21, FKHR, CTLA4, PDI, TGF_BETA, NUR_77, P15	Co-inhibitory signal transduction, Immunosuppression, inhibition of cell cycle progression	Arias <i>et al.</i> 2007; Delisle <i>et al.</i> 2013; Dijkers <i>et al.</i> 2002; Parry <i>et al.</i> 2005; Patsoukis <i>et al.</i> 2012; Youn and Liu 2000
Immune Response	5	STAT1, STAT3, GMCSF, IFN-GAMMA, CCL19	Immunity against parasitic infection, T-cell homing, T-cell homeostasis, as immune adjuvant, dendritic cell maturation, control of allergic diseases	Barbi <i>et al.</i> 2009; Green <i>et al.</i> 2013; Lee <i>et al.</i> 2013; Shi <i>et al.</i> 2006; Takamura <i>et al.</i> 2007
Interleukins	11	IL1 IL2 IL3	T helper cell proliferation and differentiation Proliferation Immune Response; critical for the development, survival and function of mast cells and basophils, role in allergic diseases	Ben-Sasson <i>et al.</i> 2009 Cantrell <i>et al.</i> 1988 Lantz <i>et al.</i> 1998
		IL4 IL5	T-cell proliferation, differentiation, inflammatory response Differentiation and function of myeloid cells; leads to growth, activation, mobilization, differentiation, and survival of eosinophils	Akdis <i>et al.</i> 2011; Kupper <i>et al.</i> 1987 Akdis <i>et al.</i> 2011
		IL6 IL8 IL9 IL10 IL12 IL13	T-cell proliferation Proinflammatory cytokine, chemotactic factor Growth factor for T-cells and mast cells T-cell suppression, immunosuppression T-cell proliferation, prevents apoptosis Antibody class switching, activation of eosinophils and mast cells, defense against parasite infections	Van Epps 2006 Wechsler <i>et al.</i> 1994 Goswami and Kaplan 2011 Akdis <i>et al.</i> 2000 Yoo <i>et al.</i> 2002 Akdis <i>et al.</i> 2011
Growth Factors	4	PDGF, PDGFRB, VEGF, HBEGF	Growth factors secreted by T-cells that acts as potent mitogens for other cells	Blotnick <i>et al.</i> 1994; Daynes <i>et al.</i> 1991; Mor <i>et al.</i> 2004; Ohm <i>et al.</i> 2003

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