



RQ1 Research question

Type	Label
Description	“perform a systematic non-dimensionalisation (this not having been undertaken by Lee et al.) and asymptotic analysis of Lee et al.’s model, in order to gain more insight into the processes controlling the levels of β -catenin within a cell.”
Study	Mirams et al. 2010

BSM1 Building simulation model

Type	Label
Description	Rewrite the ODE system in dimensionless variables
Study	Mirams et al. 2010

SM1 Simulation model

Type	Label
Description	Dimensionless Lee simulation model
Reference	Not available
Study	Mirams et al. 2010

ASM1 Analyzing simulation model

Type	Label
Description	Numerical simulation
Study	Mirams et al. 2010

SE1 Experiment

Type	Label
Description	numerical simulation of Eqs. (8)–(13) (beginning at steady state solution) with constant Wnt ($W=1$) for $t=0\dots 500$
Reference	Not available
Category	Time course analysis
Study	Mirams et al. 2010

SD1 Data

Type	Label
Description	Simulation results of SE1
Reference	Figure 3
Related to	SE1
Study	Mirams et al. 2010

BSM2 Building simulation model

Type	Label
Description	Rescale the dimensionless parameters by multiplying them by appropriate powers of epsilon so that they are $O(1)$
Study	Mirams et al. 2010

SM2 Simulation model

Type	Label
Description	Rescaled dimensionless simulation model
Reference	Not available
Study	Mirams et al. 2010

BSM3 Building simulation model

Type	Label
Description	Asymptotic analysis for models on different time scales
Study	Mirams et al. 2010

SM3 Simulation model

Type	Label
Description	model on short timescale ($t=O(\epsilon)$) → Equations (29)-(36)
Reference	Not available
Study	Mirams et al. 2010

SM4 Simulation model

Type	Label
Description	model on intermediate timescale ($t=O(1)$)→ Equations (40)-(45)
Reference	Not available
Study	Mirams et al. 2010

SM5 Simulation model

Type	Label
Description	model on long timescale ($t=O(1/\epsilon)$)→ Equations (47)-(52)
Reference	Not available
Study	Mirams et al. 2010

ASM2 Analyzing simulation model

Type	Label
Description	Numerical simulation of different timescale models
Study	Mirams et al. 2010

SE2 Experiment

Type	Label
Description	“Response to a sudden Wnt stimulus ($W = 1$) introduced when the pathway is in equilibrium (for $W = 0$) at $t = 0$ ” (SM3 + SM4 + SM5)
Reference	Not available
Category	Time course analysis
Study	Mirams et al. 2010

SD2 Data

Type	Label
Description	Simulation results of SE2
Reference	Figure 5
Related to	SE2
Study	Mirams et al. 2010

BSM4 Building simulation model

Type	Label
Description	Reduction to simpler Wnt signaling model
Study	Mirams et al. 2010

SM6 Simulation model

Type	Label
Description	simple model for output of β -catenin on long timescale \rightarrow Equations (59)
Reference	Not available
Study	Mirams et al. 2010

ASM3 Analyzing simulation model

Type	Label
Description	Numerical simulation of β -catenin response
Study	Mirams et al. 2010

SE3 Experiment

Type	Label
Description	“A Wnt stimulus of $W(t) = e^{(-t/20)}$ is applied to a system resting at a steady state with $W(0) = 0$ ”
Reference	Not available
Category	Time course analysis
Study	Mirams et al. 2010

SD3 Data

Type	Label
Description	Simulation results of SE3
Reference	Figure 7
Related to	SE3
Study	Mirams et al. 2010

BSM5 Building simulation model

Type	Label
Description	Asymptotic analysis and reduction of model by Cho et al. (Lee + feedback)
Study	Mirams et al. 2010

SM7 Simulation model

Type	Label
Description	simple model for output of β -catenin with feedback on long timescale → Equations (63)
Reference	Not available
Study	Mirams et al. 2010

A1 Assumption

Type	Label
Description	“suggest removing the influence of free β -catenin (X_{11}) and using a more conventional rate-limiting term of the form $k_{18}X_{14}/(K_{18} + X_{14})$, so that Axin2 production is an increasing and saturating function of only β -catenin/TCF”
Category	Henri-Michaelis-Menten rate law (29)
Study	Mirams et al. 2010

BSM6 Building simulation model

Type	Label
Description	Asymptotic analysis and reduction of model by Cho et al. (Lee + feedback) with different assumption
Study	Mirams et al. 2010

SM8 Simulation model

Type	Label
Description	rescaled and reduced non-dimensional model with new feedback on Axin→ Equations (14), (15), (16), (65), (18), (19)
Reference	Not available
Study	Mirams et al. 2010

ASM4 Analyzing simulation model

Type	Label
Description	Numerical simulation of β -catenin response
Study	Mirams et al. 2010

SE4 Experiment

Type	Label
Description	numerical simulation of SM8 (beginning at steady state solution) with constant Wnt ($W=1$) for $t=0\dots 500$
Reference	Not available
Category	Time course analysis
Study	Mirams et al. 2010

SD4 Data

Type	Label
Description	Simulation results of SE4
Reference	Figure 8
Related to	SE4
Study	Mirams et al. 2010

BSM7 Building simulation model

Type	Label
Description	Reduction to simpler Wnt signaling model
Study	Mirams et al. 2010

SM9 Simulation model

Type	Label
Description	simple model for output of β -catenin with different feedback on long timescale → Equations (68)
Reference	Not available
Study	Mirams et al. 2010