



RQ1 Research question

Type	Label
Description	“identify WNT and its inhibitor DKK as primary determinants of murine hair follicle spacing, using a combined experimental and computational modeling approach”
Study	Sick et al. 2006

QM1 Qualitative model

Type	Label
Description	Gierer-Meinhardt equations (Diffusion-reaction equations)
Reference	Supporting online material, Sec. Material and Methods, Subsec. 1. Modeling
Variables / Species	Activator a: Wnt, Inhibitor h: Dkk
Compartments	Epidermis
Study	Sick et al. 2006

A1 Assumption

Type	Label
Description	“inhibitor diffuses more rapidly than the activator, that is $D_a \ll D_h$ ”
Category	Diffusion coefficient (491)
Study	Sick et al. 2006

A2 Assumption

Type	Label
Description	“inhibitor adapts rapidly to changes of the activator, which is the case if it decays more rapidly than the activator, that is $\mu_a < \mu_h$ ”
Category	Decay constant (356)
Study	Sick et al. 2006

A3 Assumption

Type	Label
Description	“the influence of h takes the form for non-competitive inhibition”
Category	Non-competitive inhibitor (207)
Study	Sick et al. 2006

A4 Assumption

Type	Label
Description	“included a saturation of the production speed with a Hill term”
Category	Hill-type rate law (192)
Study	Sick et al. 2006

A5 Assumption

Type	Label
Description	“In order to model consecutive waves of hair follicle formation in mouse skin, we fixed the spots from the first simulation by adding a constant activator and inhibitor production at locations where a was above a threshold of 2.”
Category	Kinetic constant (9)
Study	Sick et al. 2006

A6 Assumption

Type	Label
Description	“To simulate that follicles of the first inductive wave are insensitive to activator and inhibitor during a subsequent wave, ρ_a and ρ_h were set to 0 at these locations.”
Category	Kinetic constant (9)
Study	Sick et al. 2006

WD1 Data

Type	Label
Description	“WNT signaling and expression of Dkk genes are associated with hair follicle formation”
Reference	Figure 1
Type of experiment	In vivo
Organism	Mouse (Foxn1::Dkk2 and wild-type)
Organ	Skin
Study	Sick et al. 2006

WD2 Data

Type	Label
Description	“Suppression of WNT signaling increases interfollicular spacing in Foxn1::Dkk2 mice”
Reference	Figure 3
Type of experiment	In vivo
Organism	Mouse (Foxn1::Dkk2 and wild-type)
Organ	Skin
Study	Sick et al. 2006

WD3 Data

Type	Label
Description	“A normal sequence of inductive waves gives rise to hair follicle clusters after moderate suppression of WNT signaling.”
Reference	Figure 4
Type of experiment	In vivo
Organism	Mouse (Foxn1::Dkk2 and wild-type)
Organ	Skin
Study	Sick et al. 2006

BSM1 Building simulation model

Type	Label
Description	Parameter adjustment such that the model is robust.
Study	Sick et al. 2006

SM1 Simulation model

Type	Label
Description	Modified Gierer-Meinhardt equations (reaction-diffusion equations) with arbitrary parameters. “Initial conditions at each point in space were drawn from a normal distribution centered on the steady state and at the boundaries we imposed von Neumann conditions.”
Reference	Not available
Study	Sick et al. 2006

ASM1 Analyzing simulation model

Type	Label
Description	Simulation model analysis
Study	Sick et al. 2006

SE1 Experiment

Type	Label
Description	“system is robust to parameter variations and the actual values do not affect the qualitative behavior of the system”
Reference	Not available
Category	Sensitivity analysis
Study	Sick et al. 2006

SD1 Data

Type	Label
Description	Simulation results of SE1
Reference	Not shown
Related to	SE1
Study	Sick et al. 2006

SE2 Experiment

Type	Label
Description	“Moderate overexpression of activator during either the initial or a subsequent inductive wave”
Reference	Not available
Category	Perturbation
Study	Sick et al. 2006

SD2 Data

Type	Label
Description	Simulation results of SE2
Reference	Figure 2
Related to	SE2
Study	Sick et al. 2006

SE3 Experiment

Type	Label
Description	“Modeling of the effects of altered activator and inhibitor production, respectively, as well as of increased inhibitor decay” (“values for ρ_a and ρ_h were increased/decreased”, “changes in inhibitor decay were accounted for by increasing/decreasing μ_h .”)
Reference	Not available
Category	Perturbation
Study	Sick et al. 2006

SD3 Data

Type	Label
Description	Simulation results of SE3
Reference	Figure S3
Related to	SE3
Study	Sick et al. 2006