

Supplementary Tables

Unperturbed model, RPTP_L=1													NOTCH E1, RPTP_L=1												
RPTP_L	HGF	EGF	ECM	TGFB	IL6	DELTA	ROS	WNT	Existing phenotypes	Reachability probability	#Successful runs	#Runs	RPTP_L	HGF	EGF	ECM	TGFB	IL6	DELTA	ROS	WNT	Existing phenotypes	Reachability probability	#Successful runs	#Runs
1	0	0	0	0	0	0	0	0	20	1.0000	N/A	N/A	1	0	0	0	0	0	0	0	0	20	1.0000	N/A	N/A
1	1	0	0	0	0	0	0	0	20	1.0000	N/A	N/A	1	1	0	0	0	0	0	0	0	20	1.0000	N/A	N/A
1	0	1	0	0	0	0	0	0	20	1.0000	N/A	N/A	1	0	1	0	0	0	0	0	0	20	1.0000	N/A	N/A
1	0	0	1	0	0	0	0	0	20	0.6262	1.00E+05	1.00E+05	1	0	0	1	0	0	0	0	0	20	0.6210	99999	1.00E+05
1	0	0	1	0	0	0	0	0	23	0.1805			1	0	0	1	0	0	0	0	0	03	0.3790		
1	0	0	1	0	0	0	0	0	03	0.1933			1	0	0	1	0	0	0	0	0	03	0.3790		
1	0	0	0	1	0	0	0	0	01	1.0000	N/A	N/A	1	0	0	0	1	0	0	0	0	01	1.0000	N/A	N/A
1	0	0	0	0	1	0	0	0	21	0.4695	1.00E+05	1.00E+05	1	0	0	0	0	1	0	0	0	01	1.0000	N/A	N/A
1	0	0	0	0	1	0	0	0	01	0.5305			1	0	0	0	0	1	0	0	0	01	1.0000	N/A	N/A
1	0	0	0	0	0	1	0	0	20	1.0000	N/A	N/A	1	0	0	0	0	0	1	0	0	20	1.0000	N/A	N/A
1	0	0	0	0	0	0	1	0	02	1.0000	N/A	N/A	1	0	0	0	0	0	0	1	0	02	1.0000	N/A	N/A
1	0	0	0	0	0	0	0	1	20	1.0000	N/A	N/A	1	0	0	0	0	0	0	0	1	20	1.0000	N/A	N/A

Unperturbed model, RPTP_L=0													NOTCH E1, RPTP_L=0												
RPTP_L	HGF	EGF	ECM	TGFB	IL6	DELTA	ROS	WNT	Existing phenotypes	Reachability probability	#Successful runs	#Runs	RPTP_L	HGF	EGF	ECM	TGFB	IL6	DELTA	ROS	WNT	Existing phenotypes	Reachability probability	#Successful runs	#Runs
0	0	0	0	0	0	0	0	0	20	1.0000	N/A	N/A	0	0	0	0	0	0	0	0	0	20	1.0000	N/A	N/A
0	1	0	0	0	0	0	0	0	12	0.9370	1.00E+05	1.00E+05	0	1	0	0	0	0	0	0	0	02	1.0000	N/A	N/A
0	1	0	0	0	0	0	0	0	02	0.0630			0	1	0	0	0	0	0	0	0	02	1.0000	N/A	N/A
0	0	1	0	0	0	0	0	0	12	0.8191	N/A	N/A	0	0	1	0	0	0	0	0	0	02	1.0000	N/A	N/A
0	0	1	0	0	0	0	0	0	02	0.1809	N/A	N/A	0	0	1	0	0	0	0	0	0	02	1.0000	N/A	N/A
0	0	0	1	0	0	0	0	0	20	0.6081	99997	1.00E+05	0	0	0	1	0	0	0	0	0	20	0.6017	99982	1.00E+05
0	0	0	1	0	0	0	0	0	03	0.3919			0	0	0	1	0	0	0	0	0	03	0.3983		
0	0	0	0	1	0	0	0	0	02	1.0000	N/A	N/A	0	0	0	0	1	0	0	0	0	02	1.0000	N/A	N/A
0	0	0	0	0	1	0	0	0	21	0.4701	1.00E+05	1.00E+05	0	0	0	0	0	1	0	0	0	01	1.0000	N/A	N/A
0	0	0	0	0	1	0	0	0	01	0.5299			0	0	0	0	0	1	0	0	0	01	1.0000	N/A	N/A
0	0	0	0	0	0	1	0	0	20	1.0000	N/A	N/A	0	0	0	0	0	0	1	0	0	20	1.0000	N/A	N/A
0	0	0	0	0	0	0	1	0	02	1.0000	N/A	N/A	0	0	0	0	0	0	0	1	0	02	1.0000	N/A	N/A
0	0	0	0	0	0	0	0	1	20	1.0000	N/A	N/A	0	0	0	0	0	0	0	0	1	20	1.0000	N/A	N/A

Wild type, HGF=1 and ECM=1													Wild type, EGF=1 and ECM=1												
RPTP_L	HGF	EGF	ECM	TGFB	IL6	DELTA	ROS	WNT	Existing phenotypes	Reachability probability	#Successful runs	#Runs	RPTP_L	HGF	EGF	ECM	TGFB	IL6	DELTA	ROS	WNT	Existing phenotypes	Reachability probability	#Successful runs	#Runs
1	1	0	1	0	0	0	0	0	20	0.6226	1.00E+05	1.00E+05	1	0	1	1	0	0	0	0	0	20	0.6249	1.00E+05	1.00E+05
1	1	0	1	0	0	0	0	0	23	0.1808			1	0	1	1	0	0	0	0	0	23	0.1798		
1	1	0	1	0	0	0	0	0	03	0.1966			1	0	1	1	0	0	0	0	0	03	0.1953		
0	1	0	1	0	0	0	0	0	03	1.0000	N/A	N/A	0	0	1	1	0	0	0	0	0	03	1.0000	N/A	N/A

Table S1: The EMT logical model predicts cooperation between RPTP_L, microenvironment signals and NOTCH E1. Probabilities of reaching EMT phenotypes (columns existing phenotypes), according to the model read-outs AJ and FA, starting from an E1 phenotype, when RPTP_L is fixed at 1 (upper left table), or RPTP_L is fixed at 0 (middle left panel), or HGF and ECM are fixed at 1 (lower left table), or RPTP-L is fixed at 1 in the presence of a NOTCH E1 mutation (upper right table), or RPTP-L is fixed at 0 in the presence of a NOTCH E1 mutation (middle right table), or EGF and ECM are fixed at 1 (lower right table). Green colors denote when the levels of the microenvironmental inputs is set to 1.

[illegible]

Table S2: Phenotypes compatible with the 80 LoF and GoF single mutants and by the 78 combinations of double mutants involving a NOTCH GoF mutation. Each column corresponds to phenotypes compatible with each single LoF (KO) and GoF (E1) mutant indicated on the left, combined (Dble) or not (Sgle) with the NOTCH E1 mutation. Grey boxes indicate phenotypes retrieved by the model under the specified condition. For some perturbations, the phenotypic landscapes are reshaped, leading to the appearance of the novel unnamed phenotypes 10, 11, 13 and 22.