Table S2: Experimental training data used to estimate the ensemble of prostate model parameters.

Experimental Setup	Observation	citation	use
C-81 transfection with WT PAcP	cyclin D 0.7 of C-81 WT	†	training
C-81 transfection with cPAcP	cyclin D 0.3 of C-81 WT	†	training
C-81 transfection with sPAcP	cyclin D 1.1 fold of WT C-81	†	training
Addition of 10nm DHT to C-81	PSA increased over time	(14)	training
Addition of 10nM DHT to C-33	PSA & Her2 activation increased and PAcP decreased	(14)	training
Overexpression of Her2 in C-33	PSA mRNA 2.2 fold of C-33 WT	(18)	training
Overexpression of Her2 in C-33	PSA 2 fold of C-33 WT	(14)	training
Transfection of constitutively active MEK in C-33	PSA 3 fold of C-33 WT	(14)	training
1μM MEK inhibitor PD98059 in C-81	PSA 0.6 of C-81 WT	(14)	training
MEK inhibitor PD98059 in C-33 with Her2 overexpression	PSA 1.86 of C-33 WT (compared to 2 with Her2 overexpression alone)	(14)	training
0.5μM Her2 inhibitor AG879 in C-81	PSA 0.58 of C-81 WT	(14)	training
10μM Her2 inhibitor AG879 in C-81	PSA 0.17 of C-81 WT	(14)	training
EGFR inhibitor AG1478 in C-81	no PSA effect	(14)	training
50ng/ml EGF to HeLa cell culture	transient increase in Erk activity	(30)	training
0.1nM DHT added to AD LNCaP	increased cyclin D expression	(57)	validation
2nM milbolerone added to AD LNCaP	Increased PSA secretion	(58)	validation
2nM milbolerone added to AD LNCaP with anti-sense AR	Increased PSA secretion to lower extent then WT	(58)	validation