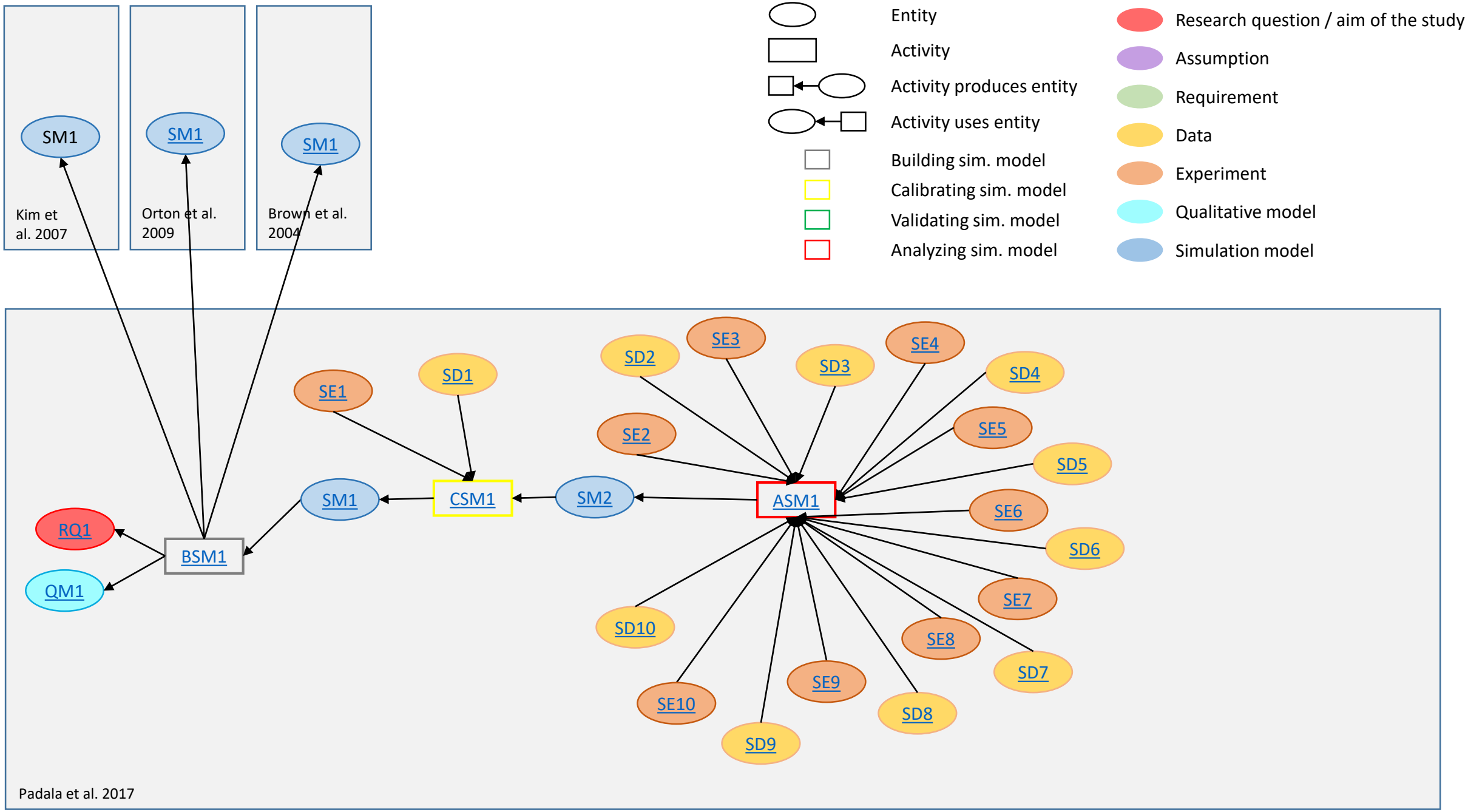
SM1
Kim et al. 2007
SM1
Orton et al. 2009
SM1
Brown et al. 2004
Entity
Activity
Activity produces entity
Activity uses entity
Building sim. model
Calibrating sim. model
Validating sim. model
Analyzing sim. model
Research question / aim of the study
Assumption
Requirement
Data
Experiment
Qualitative model
Simulation model
SE3
SD2
SE4
SD3
SD4
SE1
SD1
SE5
SE2
SD5
SM1
CSM1
SM2
ASM1
SE6
RQ1
BSM1
SD6
QM1
SE7
SD10
SE8
SD7
SE9
SE10
SD8
SD9
Padala et al. 2017

SM1 Simulation model

Type	Label
Description	Simulation model of EGF activated ERK pathway
Reference	https://www.ebi.ac.uk/biomodels/BIOMD0000000623
Study	Orton et al. 2009

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SM1 Simulation model

Type	Label
Description	“Model of Erk1/2 activation by EGF and NGF in PC12 cells”
Reference	https://www.ebi.ac.uk/biomodels/BIOMD0000000033
Study	Brown et al. 2004

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RQ1 Research question

Type	Label
Description	“show the dynamics of signaling responses during genetic and epigenetic changes in cancer” with “mathematical and quantitative modeling of ERK, PI3K/Akt, and Wnt/β-catenin signaling crosstalk”
Study	Padala et al. 2017

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QM1 Qualitative model

Type	Label
Description	“Schematic diagram of the ERK, PI3K/Akt and Wnt/β-catenin signaling pathways and crosstalk”
Reference	Figure 1
Species	APC, Akt, Axin, β-catenin, BRaf, C3G, Dsh, EGF, EGFR, ERK, GSK3β, MEK, P90Rsk, PI3K, PIP2, PIP3, PKCD, PP2A, PTEN, RKIP, Raf1, RafPPtase, Rap1, Rap1Gap, Ras, RasGap, SOS, TCF, X, null
Compartments	Cytosol
Study	Padala et al. 2017

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BSM1 Building simulation model

Type	Label
Description	Adopting previously published models
Study	Padala et al. 2017

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SM1 Simulation model

Type	Label
Description	“ERK, PI3K/Akt and Wnt/β-catenin signaling pathways and crosstalk” comprising “64 reactions, 54 nodes, and 103 parameters”
Reference	Not available
Study	Padala et al. 2017

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CSM1 Calibrating simulation model

Type	Label
Description	Parameter fitting
Study	Padala et al. 2017

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SE1 Experiment

Type	Label
Description	“values of a few parameters were scanned and modified in such a way that the overall behavior was consistent with the published experimental results”
Reference	Not available
Category	Optimization
Study	Padala et al. 2017

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SD1 Data

Type	Label
Description	Simulation results of SE1
Reference	Data not shown
Related to	SE1
Study	Padala et al. 2017

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SM2 Simulation model

Type	Label
Description	Calibrated/face validated model
Reference	https://www.ebi.ac.uk/biomodels/BIOMD0000000648
Study	Padala et al. 2017

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ASM1 Analyzing simulation model

Type	Label
Description	Simulation experiments
Study	Padala et al. 2017

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SE2 Experiment

Type	Label
Description	sensitivity analysis
Reference	Not available
Category	Sensitivity analysis
Study	Padala et al. 2017

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SD2 Data

Type	Label
Description	Simulation results of SE2
Reference	Figures S2-S16
Related to	SE2
Study	Padala et al. 2017

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SE3 Experiment

Type	Label
Description	“Simulation of pERK, pAkt, and β-catenin/TCF under normal conditions”
Reference	Not available
Category	Time course analysis
Study	Padala et al. 2017

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SD3 Data

Type	Label
Description	Simulation results of SE3
Reference	Figure 2
Related to	SE3
Study	Padala et al. 2017

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SE4 Experiment

Type	Label
Description	“Effect of Ras and B-Raf mutation on the activation dynamics of pRaf1, pERK, and β-catenin/TCF” (“mimicked the mutation and sustained activation of Ras and B-Raf by independently deleting the reverse reactions, which deactivat Ras and B-Raf in the network”)
Reference	Not available
Category	Perturbation
Study	Padala et al. 2017

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SD4 Data

Type	Label
Description	Simulation results of SE4
Reference	Figure 3
Related to	SE4
Study	Padala et al. 2017

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SE5 Experiment

Type	Label
Description	“simulated our network with different fold changes (10, 20, and 40) of EGFR expression to examine the effect on the signaling response”
Reference	Not available
Category	Parameter scan
Study	Padala et al. 2017

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SD5 Data

Type	Label
Description	Simulation results of SE5
Reference	Figure 4 A, B, C
Related to	SE5
Study	Padala et al. 2017

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SE6 Experiment

Type	Label
Description	“examined the activation status of ERK and Akt, and the levels of β-catenin/TCF complex formation after removing the receptor degradation reaction”
Reference	Not available
Category	Perturbation
Study	Padala et al. 2017

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SD6 Data

Type	Label
Description	Simulation results of SE6
Reference	Figure 4 D, E, F, G, H
Related to	SE6
Study	Padala et al. 2017

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SE7 Experiment

Type	Label
Description	“To model the mutated PI3K activity, we have simulated the network with different Kcat values (2.5, 10 and 20 fold change) of the PIP2 phosphorylation reaction”
Reference	Not available
Category	Parameter scan
Study	Padala et al. 2017

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SD7 Data

Type	Label
Description	Simulation results of SE7
Reference	Figure 5 A, B
Related to	SE7
Study	Padala et al. 2017

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SE8 Experiment

Type	Label
Description	“constitutive activation of PI3K results in a strong and sustained activation of pAkt”
Reference	Not available
Category	Perturbation
Study	Padala et al. 2017

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SD8 Data

Type	Label
Description	Simulation results of SE8
Reference	Figure 5 C, D
Related to	SE8
Study	Padala et al. 2017

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SE9 Experiment

Type	Label
Description	“PTEN mutation”
Reference	Not available
Category	Perturbation
Study	Padala et al. 2017

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SD9 Data

Type	Label
Description	Simulation results of SE9
Reference	5 E, F, G
Related to	SE9
Study	Padala et al. 2017

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SE10 Experiment

Type	Label
Description	“inactivating the destruction complex formation reaction”
Reference	Not available
Category	Perturbation
Study	Padala et al. 2017

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SD10 Data

Type	Label
Description	Simulation results of SE10
Reference	Figure 6
Related to	SE10
Study	Padala et al. 2017

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