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| **Supplemental Table 1. The full names of components in the EMT network corresponding to the abbreviated node labels used in Figure 3 and Figure 5A** |
| Name used in network | Gene symbol | Gene name/official name | Notes |
| AKT | AKT1 | v-akt murine thymoma viral oncogenehomolog 1 |  |
| AKT2 | v-akt murine thymoma viral oncogenehomolog 2 |  |
| Dest\_compl | APC | adenomatous polyposis coli | Complex |
| AXIN2 | axin 2 |
| GSK3 | glycogen synthase kinase 3 beta |
| N/A | Destruction complex |
| AXIN2 | AXIN2 | axin 2 |  |
| -catenin\_memb | CTNNB1 | -catenin (cadherin-associated protein), beta 1, 88kDa\*NOTE: “-catenin\_memb” refers to membrane-bound -catenin. |  |
| -catenin\_nuc | CTNNB1 | -catenin (cadherin-associated protein), beta 1, 88kDa\*NOTE: “-catenin\_nuc” refers to nuclear -catenin. |  |
| TrCP | BTRC | beta-transducin repeat containing E3 ubiquitin protein ligase |  |
| CD44 | CD44 | CD44 molecule (Indian blood group) |  |
| CDC42 | CDC42 | cell division cycle 42 |  |
| c-fos | FOS | FBJ murine osteosarcoma viral oncogene homolog |  |
| CHD1L | CHD1L | chromodomain helicase DNA binding protein 1-like |  |
| cMet | MET | met proto-oncogene (hepatocyte growth factor receptor) |  |
| Csl | RBPJ | recombination signal binding protein for immunoglobulin kappa J region |  |
| Csn | COPS2 | COP9 Constitutive Photomorphogenic Homolog Subunit 2 | Complex (COP9 signalosome) |
| COPS3 | COP9 Constitutive Photomorphogenic Homolog Subunit 3 |
| COPS4 | COP9 Constitutive Photomorphogenic Homolog Subunit 4 |
| COPS5 | COP9 Constitutive Photomorphogenic Homolog Subunit 5 |
| COPS6 | COP9 Constitutive Photomorphogenic Homolog Subunit 6 |
| COPS7a | COP9 Constitutive Photomorphogenic Homolog Subunit 7a |
| COPS7b | COP9 Constitutive Photomorphogenic Homolog Subunit 7b |
| COPS8 | COP9 Constitutive Photomorphogenic Homolog Subunit 8 |  |
| DELTA | DLL1 | DELTA-Like ligand 1 |  |
| DSH | DVL1 | dishevelled, dsh homolog 1 |  |
| E-cadherin | CDH1 | cadherin 1, type 1, E-cadherin |  |
| EGFR | EGFR | epidermal growth factor receptor |  |
| EGR1 | EGR1 | early growth response 1 |  |
| EMT | N/A | N/A | Indication of cellular activity |
| ERK | MAPK1 | mitogen-activated protein kinase 1 | ERK2 |
| MAPK3 | mitogen-activated protein kinase 3 | ERK1 |
| FGFR | FGFR1 | fibroblast growth factor receptor 1 |  |
| FOXC2 | FOXC2 | forkhead box C2 (MFH-1, mesenchyme forkhead 1) |  |
| Frizzled | FZD1 | frizzled family receptor 1 |  |
| FUS | STK36 | serine/threonine kinase 36 | FU, FUS |
| GLI | GLI1 | GLI family zinc finger 1 |  |
| GLI2 | GLI family zinc finger 2 |  |
| GSK3 | GSK3B | glycogen synthase kinase 3 beta |  |
| HEY1 | HEY1 | hairy/enhancer-of-split related with YRPW motif 1 |  |
| HIF1 | HIF1A | hypoxia inducible factor 1, alpha subunit (basic helix-loop-helix transcription factor) |  |
| IGF1R | IGF1R | insulin-like growth factor 1 receptor |  |
| IKK | CHUK | conserved helix-loop-helix ubiquitous kinase  | IKK1,IKKA, I-Kappa-B Kinase Alpha |
| ILK | ILK | integrin-linked kinase |  |
| Jagged | JAG1 | jagged 1 |  |
| LIV1 | SLC39A6 | Solute Carrier Family 39 (Zinc Transporter), Member 6 | LIV1 |
| LOXL23 | LOXL2 | lysyl oxidase-like 2 |  |
| LOXL3 | lysyl oxidase-like 3 |  |
| MEK | MAP2K1 | mitogen-activated protein kinasekinase 1 | MEK1 |
| MAP2K2 | mitogen-activated protein kinasekinase 2 | MEK2 |
| miR200 | MIR200B | microRNA 200b |  |
| NFB | NFKB1 | nuclear factor of kappa light polypeptide gene enhancer in B-cells 1  |  |
| NOTCH | NOTCH1 | NOTCH (Drosophila) Homolog 1 |  |
| NOTCH\_ic | NOTCH1 | NOTCH (Drosophila) Homolog 1 | NOTCH1 intracellular domain (NICD) |
| PAK1 | PAK1 | p21 protein (CDC42/Rac)-activated kinase 1 |  |
| Patched | PTCH1 | PTCH Homolog 1 (Drosophila) |  |
| PDGFR | PDGFRA | platelet-derived growth factorreceptor, alpha polypeptide |  |
| PDGFRB | platelet-derived growth factorreceptor, beta polypeptide |  |
| PI3K | PIK3CA | phosphoinositide-3-kinase, catalytic, alphapolypeptide |  |
| PIK3CB | phosphoinositide-3-kinase, catalytic, betapolypeptide |  |
| PIK3CG | phosphoinositide-3-kinase, catalytic, gammapolypeptide |  |
| RAF | RAF1 | v-raf-1 murine leukemia viral oncogenehomolog 1 |  |
| RAS | HRAS | v-Ha-ras Harvey rat sarcoma viraloncogene homolog |  |
| RKIP | PEBP4 | phosphatidylethanolamine-binding protein 4; RAF1 kinase inhibitory protein |  |
| SHH | SHH | Sonic hedgehog |  |
| SNAI2 | SNAI2 | snail homolog 2 (Drosophila) |  |
| SMAD | SMAD2 | SMAD family member 2 | Complex |
| SMAD3 | SMAD family member 3 |
| SMAD4 | SMAD family member 4 |
| SMO | SMO | smoothened, frizzled family receptor |  |
| SNAI1 | SNAI1 | snail homolog 1 (Drosophila) |  |
| SOS/GRB2 | SOS1 | son of sevenless homolog 1 (Drosophila) | Complex |
| GRB2 | growth factor receptor-bound protein 2 |
| SRC | SRC | v-src sarcoma (Schmidt-Ruppin A-2) viral oncogene homolog (avian) |  |
| STAT | STAT3 | signal transducer and activator oftranscription 3 (acute-phase responsefactor) |  |
| STAT1 | signal transducer and activator oftranscription 1, 91kDa |  |
| SUFU | SUFU | suppressor of fused homolog (Drosophila) |  |
| TCF/LEF | TCF4 | transcription factor 4, a basic helix-loop-helix transcription factor |  |
| LEF1 | lymphoid enhancer-binding factor 1 |  |
| TGF | TGFB1 | transforming growth factor, beta 1 |  |
| TGFR | TGFBR1 | transforming growth factor, beta receptor 1 | Complex |
| TGFBR2 | transforming growth factor, beta receptor 2 |
| TWIST1 | TWIST1 | twist basic helix-loop-helix transcription factor 1 |  |
| Wnt | Wnt1 | wingless-type MMTV integration site family, member 1 |  |
| ZEB1 | ZEB1 | zinc finger E-box binding homeobox 1 |  |
| ZEB2 | ZEB2 | zinc finger E-box binding homeobox 2 | SIP1 |
| EGF | EGF | epidermal growth factor |  |
| FGF | FGF2 | fibroblast growth factor 2 |  |
| HGF | HGF | hepatocyte growth factor | Hepapoietin A; scatter factor |
| Goosecoid | GSC | goosecoid homeobox |  |
| Hypoxia | N/A | N/A | Environmental input |
| IGF1 | IGF1 | Insulin-like growth factor 1 | Somatomedin C |
| PDGF | PDGFB | platelet-derived growth factor beta polypeptide |  |
| Several network nodes represent the union of a few proteins with similar roles. In these cases, a single entry in the first column corresponds to several entries in the second column. |

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| **Supplemental Table 2. Evidence for interactions among nodes in the EMT network** |
| Source (upstream) node | Target (downstream) node | Interaction | Direct Interaction? | Ref. (PMID) | Relevant information |
| AKT | GSK3 | Inhibitory | N | 21837363 |  |
| AKT | IKK | Activating | N | 16207722 |  |
| Dest\_Compl | GSK3 | Inhibitory | Y | 19536106 |  |
| Dest\_Compl | -catenin\_nuc | Inhibitory | Y | 22935447 |  |
| AXIN2 | AXIN2 | Activating | Y | 23892894 |  |
| AXIN2 |  Dest\_compl | Activating | Y | 20736375 | AXIN2 is part of the destruction complex (Dest\_compl node), which is a protein complex containing APC, AXIN2, and GSK3 proteins.  |
| -catenin\_memb | -catenin\_nuc | Inhibitory | Y | 20736375 | Membrane-bound -catenin opposes the activity of nuclear -catenin |
| -catenin\_memb | E-cadherin | Activating | Y | 22007144 |  |
| -catenin\_nuc |  Dest\_compl | Activating | Y | 20736375 |  |
| -catenin\_nuc | TCF/LEF | Activating | Y | 21539828 |  |
| -catenin\_nuc | AXIN2 | Activating | Y | 22874762 |  |
| -catenin\_nuc | -catenin\_memb | Inhibitory | Y | 21539828 | Nuclear -catenin opposes the activity of membrane-bound -catenin |
| -catenin\_nuc | SNAI2 | Activating | Y | 14623871 |  |
| TrCP | SNAI1 | Inhibitory | Y | 20305697 |  |
| CD44 | cMet | Activating | Y | 10485493 |  |
| CDC42 | PAK1 | Activating | N | 18940914 |   |
| c-fos | c-fos | Activating | Y | 2839774 |  |
| c-fos | EGR1 | Activating | N | 16170359 |  |
| CHD1L | CDC42 | Activating | Y | 20335658 |  |
| cMet | SOS/GRB2 | Activating | Y | 10593929 |  |
| cMet | SRC | Activating | Y | 21119598 |  |
| Csl | HEY1 | Activating | Y | 16525728 |  |
| Csl | SNAI1 | Inhibitory | N | 18698484 |  |
| Csn | TrCP | Inhibitory | N | 19400951 |  |
| Csn | GSK3 | Activating | Y | 19411070 |  |
| DELTA | NOTCH | Inhibitory | Y | 18758484 |  |
| DSH | GSK3 | Inhibitory | Y | 12097378 |  |
| E-cadherin | -catenin\_memb | Activating | Y | 22007144 |  |
| E-cadherin | -catenin\_nuc | Inhibitory | Y | 15662113 |  |
| E-cadherin | EMT | Inhibitory | N | 23461975 | The EMT node represents epithelial-to-mesenchymal transition and is the output of this model.  |
| EGF | EGFR | Activating | Y | 12620237 |  |
| EGFR | SOS/GRB2 | Activating | Y | 23027125 |  |
| EGFR | SRC | Activating | Y | 23066441 |  |
| ERK | SNAI2 | Activating | N | 17575121 |  |
| ERK | c-fos | Activating | N | 23381626 |  |
| ERK | SMAD | Activating | N | 12824291 |  |
| ERK | SOS/GRB2 | Inhibitory | Y | 22968039 |  |
| ERK | GSK3 | Inhibitory | N | 2328534 |  |
| ERK | RKIP | Inhibitory | Y | 19158341 |  |
| EGR1 | SNAI1 | Activating | Y | 19462441 |  |
| FGF | FGFR | Activating | N | 16098727 |  |
| FGFR | SOS/GRB2 | Activating | N | 20564331 |  |
| FGFR | SRC | Activating | N | 20154139 |  |
| FOXC2 | E-cadherin | Inhibitory | N | 20460685 |  |
| Frizzled | DSH | Activating | N | 10698942 |  |
| FUS | SUFU | Inhibitory | Y | 15750186 |  |
| GLI | SNAI1 | Activating | Y | 20878114 |  |
| GLI | TGF | Activating | Y | 22609357 |  |
| GLI | Wnt | Activating | Y | 17331723 |  |
| Goosecoid | FOXC2 | Activating | N | 17537911 |  |
| Goosecoid | ZEB2 | Activating | N | 20713713 |  |
| Goosecoid | TGF | Activating | N | 20713713 |  |
| Goosecoid | TWIST1 | Activating | N | 20713713 |  |
| Goosecoid | SNAI1 | Activating | N | 20713713 |  |
| Goosecoid | ZEB1 | Activating | N | 20713713 |  |
| GSK3 | SNAI1 | Inhibitory | Y | 15631989 |  |
| GSK3 | Dest\_Compl | Activating | Y | 12023307 | GSK3 is part of the destruction complex (Dest\_compl node), which is a protein complex containing APC, AXIN2, and GSK3 proteins.  |
| GSK3 | RAS | Inhibitory | Y | 22494971 |  |
| EGFR | SOS/GRB2 | Activating | Y | NBK21720 |  |
| EGFR | SRC | Activating | Y | 21303975 |  |
| HEY1 | E-cadherin | Inhibitory | Y | 15631989 |  |
| HGF | cMet | Activating | Y | 23624790 |  |
| HIF1 | LOXL23 | Activating | Y | 15492792 |  |
| HIF1 | TWIST1 | Activating | Y | 19279556 |  |
| HIF1 | ZEB1 | Activating | Y | 23185316 |  |
| HIF1 | ZEB2 | Activating | Y | 23185316 |  |
| Hypoxia | HIF1 | Activating | Y | 23784441 |  |
| IGF1 | IGF1R | Activating | Y | 15229476 |  |
| IGF1 | SOS/GRB2 | Activating | Y | NBK21720 |  |
| IGF1R | SRC | Activating | Y | 12820418 |  |
| IKK | NFB | Activating | Y | 22833419 |  |
| ILK | AKT | Activating | Y | 23783575 |  |
| Jagged | NOTCH | Activating | Y | 22307554 |  |
| LIV1 | SNAI1 | Activating | Y | 19724917 |  |
| LOXL23 | SNAI1 | Activating | Y | 16294032 |  |
| MEK | ERK | Activating | Y | 23749166 |  |
| miR200 | ZEB1 | Inhibitory | Y | 19020711 |  |
| miR200 | ZEB2 | Inhibitory | Y | 18829540 |  |
| NFB | Csn | Activating | Y | 19411070 |  |
| NFB | TWIST1 | Activating | Y | 17332324 |  |
| NOTCH | NOTCH\_ic | Activating | Y | 23323858 |  |
| NOTCH\_ic | Csl | Activating | Y | 18363556 |  |
| PAK1 | SNAI1 | Activating | Y | 22421159 |  |
| Patched | SMO | Inhibitory | Y | 20643350 |  |
| PDGF | PDGFR | Activating | Y | 23141925 |  |
| PDGFR | SOS/GRB2 | Activating | Y | 8041791 |  |
| PDGFR | SRC | Activating | Y | 22080864 |  |
| PI3K | AKT | Activating | Y | 23867821 |  |
| RAF | MEK | Activating | Y | 23667175 |  |
| RAS | DELTA | Activating | Y | 16489124 |  |
| RAS | PI3K | Activating | Y | 23684925 |  |
| RAS | RAF | Activating | Y | 23601922 |  |
| RKIP | MEK | Inhibitory | Y | 15151133 |  |
| SNAI2 | E-cadherin | Inhibitory | Y | 23906494 |  |
| SNAI2 | SNAI2 | Activating | Y | 16510505 |  |
| SMAD | HEY1 | Activating | Y | 22421041 |  |
| SMAD | ILK | Activating | Y | 21150927 |  |
| SMAD | Jagged | Activating | Y | 22585622 |  |
| SMAD | SHH | Activating | N | 18174246 |  |
| SMAD | SNAI1 | Activating | Y | 20519943 |  |
| SMO | FUS | Activating | Y | 17671093 |  |
| SNAI1 | E-cadherin | Inhibitory | Y | 21317430 |  |
| SNAI1 | FOXC2 | Activating | Y | 17537911 |  |
| SNAI1 | ZEB1 | Activating | N | 18411277 |  |
| SNAI1 | ZEB2 | Activating | N | 18347095 |  |
| SNAI1 | miR200 | Inhibitory | Y | 21394833 |  |
| SNAI1 | RKIP | Inhibitory | N | 19538137 |  |
| SNAI1 | SNAI1 | Inhibitory | Y | 16617148 |  |
| SNAI1 | TGF | Activating | Y | 16397407 |  |
| SNAI1 | TWIST1 | Activating | Y | 16397407 |  |
| SOS/GRB2 | RAS | Activating | Y | 22344067 |  |
| SHH | Patched | Inhibitory | Y | 23544423 |  |
| SRC | RAS | Activating | Y | 22829592 |  |
| SRC | STAT | Activating | Y | 19632985 |  |
| STAT | LIV1 | Activating | Y | 18330719 |  |
| SUFU | -catenin\_nuc | Inhibitory | Y | 15077159 |  |
| SUFU | GLI | Inhibitory | Y | 23686138 |  |
| TCF/LEF | AXIN2 | Activating | N | 11809808 |  |
| TCF/LEF | CD44 | Activating | Y | 10027409 |  |
| TCF/LEF | GLI | Activating | N | 21775418 |  |
| TCF/LEF | Jagged | Activating | N | 23651211 |  |
| TCF/LEF | RAS | Activating | N | 22494971 |  |
| TCF/LEF | TWIST1 | Activating | Y | 20519943 |  |
| TGF | TGFR | Activating | Y | 12154066 |  |
| TGFR | CDC42 | Activating | Y | 18062917 |  |
| TGFR | SOS/GRB2 | Activating | Y | 17537911 |  |
| TGFR | SMAD | Activating | Y | 21717360 |  |
| TWIST1 | E-cadherin | Inhibitory | Y | 22581441 |  |
| TWIST1 | FOXC2 | Activating | Y | 15001769 |  |
| TWIST1 | SNAI2 | Activating | N | 20713713 |  |
| TWIST1 | TGF | Activating | N | 20713713 |  |
| Wnt | Frizzled | Activating | Y | 23927957 |  |
| ZEB1 | E-cadherin | Inhibitory | Y | 18829540 |  |
| ZEB1 | miR200 | Inhibitory | Y | 12743039; 20514018 |  |
| ZEB1 | SMAD | Activating | Y | 21593157 |  |
| ZEB2 | E-cadherin | Inhibitory | Y | 21049046 |  |
| ZEB2 | miR200 | Inhibitory | Y | 22012804 |  |
| ZEB2 | SMAD | Inhibitory | Y | 12743039 |  |

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| **Supplemental Table 3. Boolean update rules and initial state of the 68 node EMT network**  |
| **Update rules** | **Epithelial initial condition** |
| AKT\* = ILK or PI3K | AKT = OFF |
| Dest\_compl\* = (GSK3 and AXIN2 and -catenin\_nuc) or (GSK3 and Dest\_compl) | Dest\_compl = ON |
| AXIN2\* = AXIN2 or TCF/LEF | AXIN2 = OFF |
| -catenin\_memb\* = E-cadherin and not -catenin\_nuc | -catenin\_memb = ON |
| -catenin\_nuc\* = not Dest\_compl and not -catenin\_memb and (not SUFU or not E-cadherin) | -catenin\_nuc = OFF |
| TrCP\* = not Csn | TrCP = ON |
| CD44\* = TCF/LEF | CD44 = OFF |
| CDC42\* = TGFR or CHD1L | CDC42 = OFF |
| c-fos\* = ERK | c-fos = OFF |
| cMet\* = HGF or CD44 | cMet = OFF |
| Csl\* = NOTCH\_ic | Csl = OFF |
| Csn\* = NFB | Csn = OFF |
| DELTA\* = RAS | DELTA = OFF |
| DSH\* = Frizzled | DSH = OFF |
| E-cadherin\* = -catenin\_memb and (not SNAI1 or not HEY1 or not ZEB1 or not ZEB2 or not FOXC2 or not TWIST1 or not SNAI2) | E-cadherin = ON |
| EGFR\* = EGF | EGFR = OFF |
| EGR1\* = c-fos | EGR1 = OFF |
| EMT\* = not E-cadherin or EMT | EMT = OFF |
| ERK\* = MEK | ERK = OFF |
| FGFR\* = FGF | FGFR = OFF |
| FOXC2\* = Goosecoid or SNAI1 or TWIST1 | FOXC2 = OFF |
| Frizzled\* = Wnt | Frizzled = OFF |
| FUS\* = SMO | FUS = OFF |
| GLI\* = TCF/LEF or not SUFU | GLI = OFF |
| GSK3\* = not DSH and not AKT and (not Csn or not ERK or not Dest\_compl) | GSK3 = ON |
| HEY1\* = Csl or SMAD | HEY1 = OFF |
| HIF1\* = Hypoxia | HIF1 = OFF |
| IGF1R\* = IGF1 | IGF1R = OFF |
| IKK\* = AKT | IKK = OFF |
| ILK\* = SMAD | ILK = OFF |
| Jagged\* = TCF/LEF or SMAD | Jagged = OFF |
| LIV1\* = STAT | LIV1 = OFF |
| LOXL23\* = HIF1 | LOXL23 = OFF |
| MEK\* = RAF or not RKIP | MEK = OFF |
| miR200\* = not SNAI1 and not ZEB1 and not ZEB2 | miR200 = ON |
| NFB\* = IKK | NFB = OFF |
| NOTCH\* = DELTA or Jagged | NOTCH = OFF |
| NOTCH\_ic\* = NOTCH | NOTCH\_ic = OFF |
| PAK1\* = CDC42 | PAK1 = OFF |
| Patched\* = not SHH | Patched = ON |
| PDGFR\* = PDGF | PDGFR = OFF |
| PI3K\* = RAS | PI3K = OFF |
| RAF\* = RAS | RAF = OFF |
| RAS\* = SOS/GRB2 or SRC or not GSK3 or TCF/LEF | RAS = OFF |
| RKIP\* = not ERK or not SNAI1 | RKIP = ON |
| SHH\* = SMAD or GLI | SHH = OFF |
| SNAI2\* = ERK or -catenin\_nuc or SNAI2 or TWIST1 | SNAI2 = OFF |
| SMAD\* = (ERK or TGFR) and (ZEB1 or not ZEB2) | SMAD = OFF |
| SMO\* = not Patched | SMO = OFF |
| SNAI1\* = GLI or LOXL23 or SMAD or LIV1 or PAK1 or Csl or EGR1 or Goosecoid or not TrCP or not GSK3 | SNAI1 = OFF |
| SOS/GRB2\* = (PDGFR or cMet or TGFR or FGFR or IGF1R or EGFR) and not ERK | SOS/GRB2 = OFF |
| SRC\* = PDGFR or EGFR or FGFR or cMet or IGF1R | SRC = OFF |
| STAT\* = SRC | STAT = OFF |
| SUFU\* = not FUS | SUFU = ON |
| TCF/LEF\* = -catenin\_nuc | TCF/LEF = OFF |
| TGF\* = Goosecoid or SNAI1 or TWIST1 or GLI | TGF = OFF |
| TGFR\* = TGF | TGFR = OFF |
| TWIST1\* = NFB or HIF1 or TCF/LEF or Goosecoid or SNAI1 | TWIST1 = OFF |
| Wnt\* = GLI | Wnt = OFF |
| ZEB1\* = (HIF1 or SNAI1 or Goosecoid) and not miR200 | ZEB1 = OFF |
| ZEB2\* = (HIF1 or SNAI1 or Goosecoid) and not miR200 | ZEB2 = OFF |
|  |  |
|  | EGF = OFF |
|  | FGF = OFF |
|  | HGF = OFF |
|  | Goosecoid = OFF |
|  | Hypoxia = OFF |
|  | IGF1 = OFF |
|  | PDGF = OFF |
|  | CHD1L = OFF |

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| **Supplemental Table 4: Key experimental outcomes reproduced by the EMT network model** |
| Statement | Ref. (PMID) | Does the model capture this? |
| TGFβ signaling leads to SMAD complex formation, MAP kinase signaling, and AKT signaling. | 20495575 | Yes |
| Wnt signaling leads to nuclear localization of β-catenin, AXIN2 induction, and suppression of the destruction complex | 11809808 | Yes |
| SHH signaling leads to induction of GLI transcription factors | 21789137 | Yes |
| miR200 inhibits TGFβ –driven EMT | 18411277 | Yes |
| E-cadherin suppressing transcription factors SNAI1, SNAI2, ZEB1, ZEB2, TWIST1, FOXC2, and HEY1 induce EMT when acting together | 22945800, 20713713 | Yes |
| Constitutive SNAI1 or TWIST1 activation induces the activation of SNAI2, ZEB1, ZEB2, HEY1, and FOXC2, and drives EMT | 22945800, 20713713, 21199805, 21317430, | Yes |

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| **Supplemental Table 5: Boolean rules and initial state for the 19 node reduced EMT network** |
| **Update rules** | **Epithelial initial condition** |
| AKT\* = SMAD or SOS/GRB2 or not GSK3 or catenin\_nuc | AKT = OFF |
| AXIN2\* = AXIN2 or catenin\_nuc | AXIN2 = OFF |
| catenin\_memb\* = E-cadherin and not catenin\_nuc | catenin\_memb = ON |
| catenin\_nuc\* = not Dest\_compl and not catenin\_memb and (SMAD or GLI or not E-cadherin)  | catenin\_nuc = OFF |
| Dest\_compl\* = (GSK3 and AXIN2 and -catenin\_nuc) or (GSK3 and Dest\_compl) | Dest\_compl = ON |
| E-cadherin\* = catenin\_memb and (not SNAI1 or (not NOTCH and not SMAD) or not ZEB1 or not ZEB2 or not TWIST1 or not SNAI2) | E-cadherin = ON |
| GLI\* = catenin\_nuc or SMAD or GLI | GLI = OFF |
| GSK3\* = not GLI and not AKT | GSK3ON |
| MEK\* = SOS/GRB2 or not GSK3 or catenin\_nuc or not (not MEK or not SNAI1) | MEK = OFF |
| NOTCH\* = SOS/GRB2 or not GSK3 or catenin\_nuc or SMAD | NOTCH = OFF |
| SMAD\* = (MEK or TGFR) and (ZEB1 or not ZEB2) | SMAD = OFF |
| SNAI1\* = GLI or SMAD or catenin\_nuc or TGFR or NOTCH or MEK or AKT or not GSK3 | SNAI1 = OFF |
| SNAI2\* = MEK or catenin\_nuc or SNAI2 or TWIST1 | SNAI2 = OFF |
| SOS/GRB2\* = (catenin\_nuc or TGFR) and not MEK | SOS/GRB2 = OFF |
| miR200\* = not SNAI1 and not ZEB1 and not ZEB2 | miR200 = ON |
| TGF\* = SNAI1 or TWIST1 or GLI | TGF = OFF |
| TWIST1\* = AKT or catenin\_nuc or SNAI1 | TWIST1 = OFF |
| ZEB1\* = SNAI1 and not miR200 | ZEB1 = OFF |
| ZEB2\* = SNAI1 and not miR200 | ZEB2 = OFF |