

Node	Annotation
Panda	Panda constrains Nodal expression in the early stage. Haillot et al. (2015).
Tolloid	Tolloid (BMP1). Protease expressed ubiquitously at an early stage. Degrades Chordin. Lapraz et al. (2009)
Wnt	Wnt is active in the vegetative pole. It induces Admp2 expression through the Frizzled receptor(s).
Alk	Activin-like Kinases. Type I receptor of Nodal ligand. Have a serine-threonine kinase activity to activate Smad2-3. Massagué, et al. (2000)
Smad	Combination of two homologous proteins SMA+MAD. Intracellular component that transduce Nodal signalling into the nucleus by being phosphorylated by active Alk receptors. May require several Smad, Co-Smad and Co-factors. Receptor substrate. Transcriptional regulator. Massagué et al. (2000)
Nodal	Member of the TGF-beta family. Governs the specification of the Ventral region and activate the expression of the signalling cascade for the Dorsal region. Molina et al. (2013)
Bmp2/4	Member of the TGF-Beta family. Paracrine factor. Highly diffusible. Ligand. Gilbert, S.F. (2014).
Lefty	Member of the TGFbeta family. Diffusible. Long range Nodal antagonist. Competitive binding to the receptors ActRIIA and ActRIIB. Monomeric. Feedback inhibitor of Nodal signalling. Reaction-diffusion mechanism. Saijoh et al. (2000), Sakuma et al. (2002)
Chordin	Paracrine factor. Antagonist of BMP. In extracellular space, binds directly to BMP2/4 by cysteine rich modules to prevents its complexing with the receptors. Complexing can be cleaved by metalloprotease Tolloid (Bmp1), freeing Bmp2/4 from Chordin in the dorsal area. Larraín et al. (2000)
Admp	Anti-Dorsalizing morphogenesis protein. Ligand part of the BMP family. ADMP1 is expressed on the ventral side (activated by Smad2), but repressed on the dorsal side (by Smad1) when signal from Bmp2/4 is sufficient (level 2). Morphogen/expander relationship between E=ADMP1 and M=BMP2/4. See Averbukh et al. (2014) for an example between dpp/pentagon. Averbukh et al. (2014)
Goosecoid	ADMP2 is expressed both in the border ectoderm (following Wnt signalling, propagating to the dorsal area, activating the dorsal pathway) and dorsally in a positive feedback loop down stream of BMP signalling. (Note: This is unusual, ADMP are in general repressed by BMP signalling). Gaviño et al. (2011) Organizer gene. Transcriptional repressor. Homeobox gene. Angerer et al. (2001), Molina et al. (2013)
FoxA	Forkhead Transcription Factor. Important in endoderm and stomodeum specification. Oliveri et al. (2006), Tu et al. (2006)
Brachyury	Transcription factor, T-box type. Acts during mesoderm specification. Gilbert, S.F. (2014).
Onecut	Protein containing a cut domain and an homeodomain. Transcriptional regulator. DNA binding by motif recognition. Nguyen et al. (2000)
FGFA	Fibroblast Growth Factors. Paracrine factors regulating cell proliferation and differentiation. Involved in the regulation of the morphogenesis of the skeleton. Rottinger et al. (2007)
Repressor_R1	Unknown Repressor. Allow the indirect induction of brachyury and FoxA by the transcriptional repressor goosecoid. Molina et al. (2013)
Tbx2/3	Codes for T-box proteins that regulate activity of other genes by binding to specific region of DNA. Transcription factor. Tbx2-3 governs EMT=Epithelial-Mesenchymal Transition. Gilbert, S.F. (2014).
IrxA	Cluster of 3 Iroquoit Gene Family genes. Encodes homeoproteins. PLays a role in specification of territories and development of patterns. Act via protein-protein interaction. Gómez-Skarmeta et al. (2002)
Frz	Frizzled Receptor for Wnt ligands. Activates admp2 gene.

**Supplementary Table. Unicellular model annotation.**

Table summarising the annotation information for each of the node present within the unicellular model file. These annotations reflect the literature references used to build the regulatory rule for each given component, in addition to Saudemont et al., 2010.