

Regulation of actomyosin contractility: lessons from *C. elegans*

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Distinct actomyosin structures power a variety of cellular and multicellular processes requiring force. A network of proteins, including actin binding proteins, myosin phosphorylation regulators, and RhoGTPases and their regulators (collectively referred to as the Contractome), regulates the assembly and contraction of actomyosin structures in specific cellular locations at specific times. How this regulation works *in vivo* is still poorly understood. We are addressing this question in the model organism *C. elegans*. In my talk, I will present recent results on the function of contractility in maintaining the structure of the syncytial germline, a mechanotransduction pathway linking membrane stretching to activation of actomyosin in the spermatheca, the role of connectivity in cortical polarization and cytokinesis in the zygote, and an unexpected role for non-junctional cadherin clusters.