

Temperature dependence of the cytoskeletal machinery and of its dynamics

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Abstract:

Cytoskeletal filaments and associated motors are essential to homeostasis of eukaryotic cells. An often overlooked aspect of this need to keep cellular organization and transport in balance is that it all must function in the context of changing temperatures. Even nominally thermoregulated organisms, such as mammals are subject to fever and hypothermia and some are even exposed to temperature extremes, e.g. during hibernation. I will discuss the advances my lab has made to understand the balance of microtubule-based motor transport with respect to temperature. I will also discuss our recent work on temperature dependence of the mechanical properties of microtubules.