

1173-92-290

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Assessing speed distributions for intracellular transport by molecular motors.

While it is widely recognized that intracellular transport by different molecular motors is associated with distinct characteristic speeds and run durations, there exists further variation in how variable speeds and runs are. For example, in recent work with Melanie Jensen and the Will Hancock lab, we showed that in vitro transport by kinesin-1 motors is highly stereotyped (consistent among multiple observations) but transport by dynein-dynactin-BicD2 (DDB) is much more varied. Clarifying these differences might turn out to be important for understanding how multiple motors coordinate and compete to transport cargo through live cells. In this talk, I will share some details on how our group (joint work with Keisha Cook and Melanie Jensen) have been thinking about "speed distributions" from a modeling and inference perspective, and also on some of the ways we remain dissatisfied going forward. (Received September 21, 2021)