Myosin-Va mediates RNA localization in primary fibroblasts from multiple organs

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Myosin-Va has been shown to have multiple functions in a variety of cell types, including a role in RNA transport in neurons. Using primary cultures of cells from organs of young *dilute-lethal (Myo5a^{dl}/Myo5a^{dl})* null mutant mice and wild-type controls, we show that in some, but not all, tissues, RNA distribution is dramatically different in the homozygous null mutant cells. The dependence of RNA localization on myosin-Va correlates with the relative abundance of the brain-specific splicing pattern of the myosin-Va tail. We also show that myosin-Va is involved in RNA localization soon after synthesis, because the effects of its absence are diminished for RNAs that are more than 30 minutes old. Finally, we show that localization of ß-actin mRNA is significantly changed by the absence of myosin-Va. These results suggest that myosin-Va is involved in a transient transport or tethering function in the perinuclear region.