

An agent-based model for mRNA localization in frog oocytes

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During early development of *Xenopus laevis* oocytes, mRNA moves from the nucleus to the periphery of the cells. We use an agent-based model to study the movement of mRNA by molecular motor transport and diffusion. Our results suggest that an anchoring mechanism of a particular motor-mRNA complex is required to achieve the observed localization of mRNA. We also suggest ways to extract more accurate estimates of diffusion rates and transport velocities of RNA from experimental data by taking into account transport by molecular motor proteins.

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