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Lipid highways: Mechanistic insights into ATG2-mediated lipid transport

Autophagy requires lipid transfer from the ER to growing phagophores. Using structural predictions, molecular dynamics simulations, and in vitro lipid transfer assays, we investigated how the lipid transfer protein ATG2A mediates this process. We identified a novel gating mechanism driven by conformational rearrangements of N-terminal amphipathic helices. Guided by this insight, we designed an ATG2A mutant that transfers lipids threefold faster than the wild type in vitro.

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