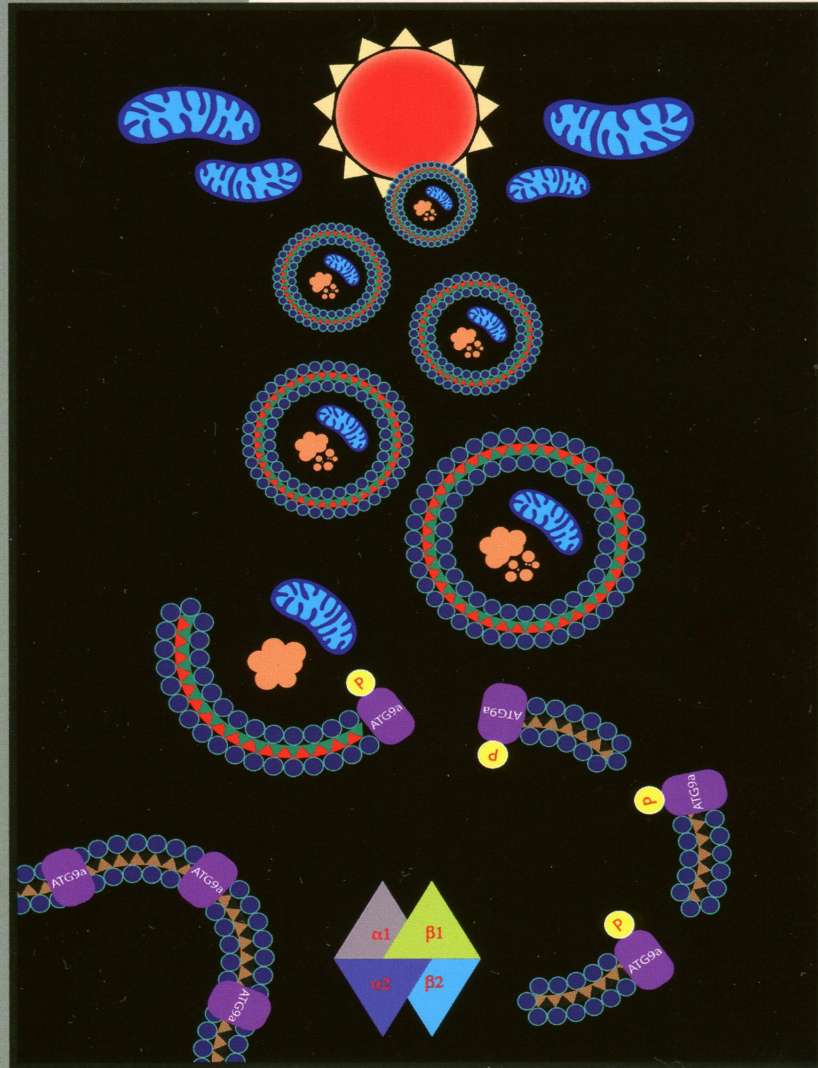


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Cover photograph (Copyright © 2014. American Society for Microbiology. All rights reserved.) To alleviate the metabolic demands of starvation, cells undergo autophagy characterized by the formation of autophagosomes. Atg9 plays a central role in this process by supplying membrane to growing autophagosomes (the membrane-enclosed vesicles moving toward the sun). The sources of autophagosomal membrane (bottom left) may include the trans-Golgi network and plasma membrane. Weerasekara et al. posit that AMPK-mediated phosphorylation on Atg9 increases the Atg9-mediated delivery of membrane to autophagosomes during nutrient stress. The end result is increased flux of autophagosomes—the carriers of cellular components destined for degradation and recycling—to the lysosome (depicted as the sun, an energy source in a closed system). (See related article on p. 4379.)