

BAG3 regulates total MAP1LC3B protein levels through a translational but not transcriptional mechanism

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Resumen

Autophagy is mainly regulated by post-translational and lipid modifications of ATG proteins. In some scenarios, the induction of autophagy is accompanied by increased levels of certain ATG mRNAs such as MAP1LC3B/LC3B, ATG5 or ATG12. However, little is known about the regulation of ATG protein synthesis at the translational level. The cochaperone of the HSP70 system BAG3 (BCL2-associated athanogene 3) has been associated to LC3B lipidation through an unknown mechanism. In the present work, we studied how BAG3 controls autophagy in HeLa and HEK293 cells. Our results showed that BAG3 regulates the basal amount of total cellular LC3B protein by controlling its mRNA translation. This effect was apparently specific to LC3B because other ATG protein levels were not affected. BAG3 knockdown did not affect LC3B lipidation induced by nutrient deprivation or proteasome inhibition. We concluded that BAG3 maintains the basal amount of LC3B protein by controlling the translation of its mRNA in HeLa and HEK293 cells.

Palabras clave

Palabras clave de autor: ATG8; autophagy; BAG3; cochaperone; LC3; MAP1LC3B

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