

IN BRIEF

RNA DECAY

CRD-BP protects the coding region of β TrCP1 mRNA from miR-183-mediated degradation

Elcheva, I. *et al. Mol. Cell* **35**, 240–246 (2009)

The low stability of the β -transducin repeat-containing (*BTRC*; also known as β TrCP1) mRNA, which encodes the regulatory subunit of an SCF E3 ubiquitin ligase, is mediated by destabilizing elements located in its coding region. Elcheva *et al.* show that the microRNA miR-183 interacts with the coding region of *BTRC* mRNA and destabilizes it by recruiting the endonuclease Argonaute 2. The RNA-binding coding region determinant-binding protein (CRDBP; also known as IGF2BP1) disrupts the miRNA-dependent interaction with Argonaute 2, causing stabilization of *BTRC* mRNA. Whether mRNA degradation through targets in the coding sequence is a general feature of miRNA function is still unknown.

AUTOPHAGY

Mitochondria-anchored receptor Atg32 mediates degradation of mitochondria via selective autophagy

Okamoto, K. *et al. Dev. Cell* **17**, 87–97 (2009)

Atg32 is a mitochondrial protein that confers selectivity during mitophagy

Kanki, T. *et al. Dev. Cell* **17**, 98–109 (2009)

Mitochondria accumulate oxidative damage as a consequence of their role in producing cellular energy. To ensure cellular homeostasis, damaged mitochondria are transported to the yeast vacuole for degradation by a selective, mitochondrion-specific type of autophagy, termed mitophagy. Two new studies reveal that autophagy-related protein 32 (Atg32) has an essential role in yeast mitophagy by recruiting mitochondria to the autophagy machinery. Atg32 is an integral outer membrane protein of mitochondria that interacts with Atg8 and Atg11 — adaptor proteins for selective autophagy that recruit targets to the site of degradation. Okamoto *et al.* show that Atg32, and its association with Atg8 and Atg11, is induced in cells undergoing respiratory growth — a process that triggers mitochondrial degradation. Kanki *et al.* show that overexpressed Atg32 localizes to mitochondria and binds to Atg11 during starvation-induced mitophagy. Both studies also show that Atg32 is imported into the vacuole in parallel with mitochondria, and that it is not required for other types of selective autophagy. Atg32 is therefore a mitophagy-specific receptor that tags mitochondria for selective degradation by the autophagy machinery.

RNA INTERFERENCE

C3PO, an endoribonuclease that promotes RNAi by facilitating RISC activation

Liu, Y. *et al. Science* **325**, 750–753 (2009)

The authors reconstituted the activity of the *Drosophila melanogaster* RNA-induced silencing complex (RISC) *in vitro* using the recombinant components Dicer 2, R2D2 and Argonaute 2, and searched for additional factors that enhance RISC activity in protein extracts. They purified C3PO (component 3 promoter of RISC), a Mg²⁺-dependent endonuclease complex composed of Translin and Trax. Further biochemical analyses showed that C3PO promotes unwinding of small interfering RNA and removes the passenger strand cleavage products, which enables the remaining guide strand to form an active RISC with Argonaute 2, ultimately promoting RNA interference.