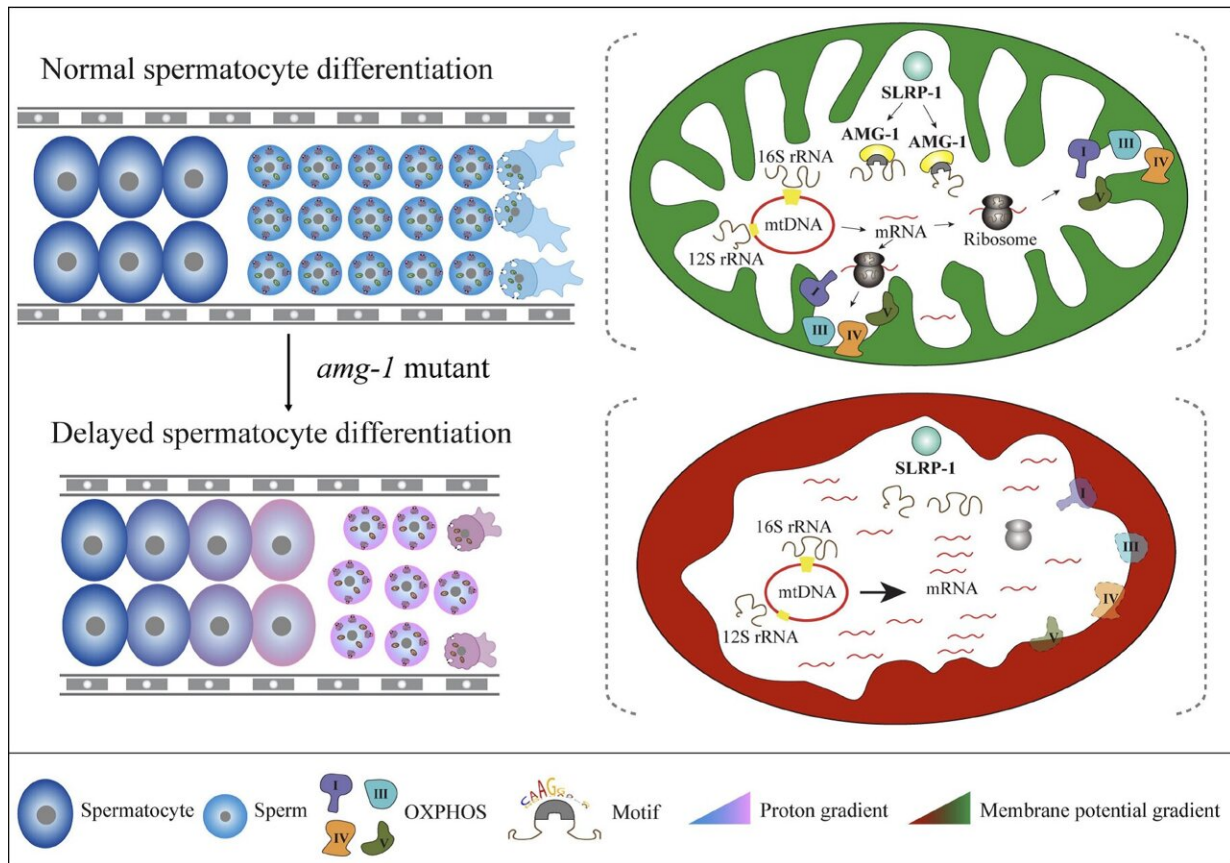


# AMG-1/SLRP-1 is required for spermatogenesis in *C. elegans*: Study

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Graphical view of AMG-1 binding 12S rRNA to regulate mitochondrial gene translation (top), and *amg-1* mutation results in reduced mitochondrial translation machinery (bottom). Credit: Science China Press

The mechanisms of RNA-binding proteins (RBPs)-mediated post-

transcriptional regulation of pre-existing mRNAs, which is essential for spermatogenesis, remain poorly understood.

In this study, researchers identify that a [germline](#)-specific mitochondrial RBP AMG-1 (abnormal mitochondria in germline 1), a homolog of mammalian leucine-rich PPR motif-containing protein (LRPPRC), is required for spermatogenesis in *Caenorhabditis elegans*.

The *amg-1* mutation hinders germline development without affecting somatic development and leads to the aberrant mitochondrial morphology and structure associated with mitochondrial dysfunctions specifically in the germline. Researchers demonstrate that AMG-1 is most frequently bound to mtDNA-encoded 12S and 16S ribosomal RNA, the essential components of mitochondrial ribosomes, and that 12S rRNA expression mediated by AMG-1 is crucial for germline mitochondrial protein homeostasis.

Furthermore, steroid receptor RNA activator (SRA) stem loop interacting RNA binding protein (SLRP-1), a homolog of mammalian SRA stem loop interacting RNA binding protein (SLIRP) in *C. elegans*, interacts with AMG-1 genetically to regulate germline development and [reproductive success](#) in *C. elegans*. Overall, these findings reveal the novel function of mtRBP, specifically in regulating germline development.

This study was led by Prof. Long Miao (Key Laboratory of Cell Proliferation and Regulation Biology of Ministry of Education, College of Life Science, Beijing Normal University). The paper is published in the journal *Science Bulletin*.

**More information:** Peng Wang et al, RNA-binding protein complex AMG-1/SLRP-1 mediates germline development and spermatogenesis by maintaining mitochondrial homeostasis in *Caenorhabditis elegans*,

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