

RNA干涉与基因沉默 RNA Interference and Gene Silencing

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摘要 双链RNA介导的遗传干涉的机制是1998年发现的。它通过双链RNA的介导特异性地降解相应序列的mRNA, 从而导致转录后水平的基因沉默。到目前为止在真菌、拟南芥、线虫、锥虫、水螅、涡虫、果蝇、斑马鱼、小鼠等真核生物中都发现存在这一基因沉默机制。目前的研究表明, RNA干涉与植物中的共抑制(cosuppression)、真菌中的基因压制(quelling)很可能具有共同的基本分子机制。这也说明, 很可能在进化的很早期阶段, 生物就获得了这种机制。RNA干涉对于抵抗病毒入侵、抑制转座子活动等具有重要作用, 对于生物体的发育和基因调控可能也有重要作用。

Abstract: The mechanism of a new phenomenon—genetic interference directed by double-stranded RNA was first discovered in 1998 by Andrew Fire and Craig Mello. It degrades mRNA specifically and potently through the mediation of corresponding double-stranded RNA and leads to post-transcriptional gene silencing. Consequently RNA interference was observed in eukaryotic organisms including fungi, Arabidopsis, *C. elegans*, trypanosomes, hydra, planaria, *Drosophila*, zebrafish, and mouse. More and more evidence supports that RNAi, co-suppression in plants, and quelling in fungi shares the same basic molecular mechanism. It indicates that this mechanism was acquired during early evolution. RNAi plays important roles in resistance to virus invasion, and inhibition of transportable elements. And it is very likely that RNAi is also important during the normal development and regulation of gene expression.

关键词 [RNA干涉](#) [双链RNA](#) [基因沉默](#) **Keywords** [RNA interference](#) [double-stranded RNA](#) [gene silencing](#)

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