



Figure 3. miRNA biogenesis and modes of action. Capped and polyadenylated transcripts of nuclear RNA Pol II that form imperfect hairpins serve as the precursors for miRNAs. DCL1 cleaves these precursors with the help of the HYL1, DDL1, and SE nucleic acid-binding proteins. Diced products are end-methylated by HEN1 and exported to the cytoplasm in a process involving the exportin 5 homolog, HST. In association with AGO1 or a related AGO protein, such as AGO10, the miRNA guides the cleavage or translational inhibition of complementary mRNAs. Nuclear functions in which miRNAs are implicated include specific cases of cytosine methylation, *trans*-acting siRNA (tasiRNA) production or pre-mRNA degradation.