



Figure 1. Overview of small RNA-silencing pathways. Silencing requires the biogenesis of a small RNA from either long ssRNA or dsRNA. The resulting small RNA is loaded onto effector complexes that contain a member of the Argonaute/Piwi (AGO) family of proteins, which bind to the small RNA (~22 to 28 nt in size) via their conserved middle (MID) and PIWI-Argonaute-Zwille (PAZ) domains. RNAi-mediated silencing occurs via multiple mechanisms. In the nucleus, RNAi promotes DNA and chromatin modification to induce heterochromatin formation and TGS. In addition, it cotranscriptionally degrades RNAs that are transcribed in heterochromatic domains by a process called cotranscriptional gene silencing (CTGS). In the cytoplasm, RNAi mediates the degradation of target mRNAs or their translational repression (PTGS).