



What's regulating your growth?

QIAGEN provides solutions for the quantification of plant miRNAs with the miScript® Plant qPCR System.

Plant miRNAs have unique characteristics that inhibit traditional universal reverse transcription methods. QIAGEN plant miRNA-specific RT kits overcome these challenges – read on to find out more!



miRNA are small noncoding RNAs that directly regulate gene expression in a tissue- and situation-dependent manner. Studies have shown that plant miRNAs respond to specific environmental pressures. For example, during abiotic stress, miRNAs function by regulating target genes within the miRNA-target gene network and by controlling signaling pathways and root development. Generally speaking, stress-induced miRNAs lead to down-regulation of negative regulators of stress tolerance whereas stress-inhibited miRNAs allow the accumulation and function of positive regulators.

Unique biological characteristics of plant miRNAs make it imperative that reagents and assays are designed to work specifically with plant miRNAs.

Plant miRNAs are structurally different from animal miRNAs

Plant miRNAs are unique in that they possess a 2'-O-methyl residue on their 3' terminal base. While other small RNAs, such as piwi-interacting RNAs (piRNAs) have this modification, animal miRNAs do not. The consequence of the 2'-O-methyl is that the common method of universal reverse transcription (synthetic polyadenylation followed by reverse transcription) is inefficient. The miScript Plant RT Kit effectively solves this problem.

Plant miRNA isolation, detection and analysis with miScript

The miScript Plant qPCR System was designed specifically to enable robust quantification of plant miRNAs. The miScript Plant RT Kit uses a highly optimized adaptor ligation-based reverse transcription method to overcome the bias resulting from the 2'-O-methyl residue. This method enables efficient reverse transcription of all plant miRNAs as well as piRNAs. Beyond the reverse transcription kit, primer assays have been functionally verified

for common plant species that include rice, soybean, corn and arabidopsis. These assays are available as individual tube miScript Primer Assays or preformatted single-use miScript miRNA PCR Arrays. Custom assays can also be designed for any plant miRNA.

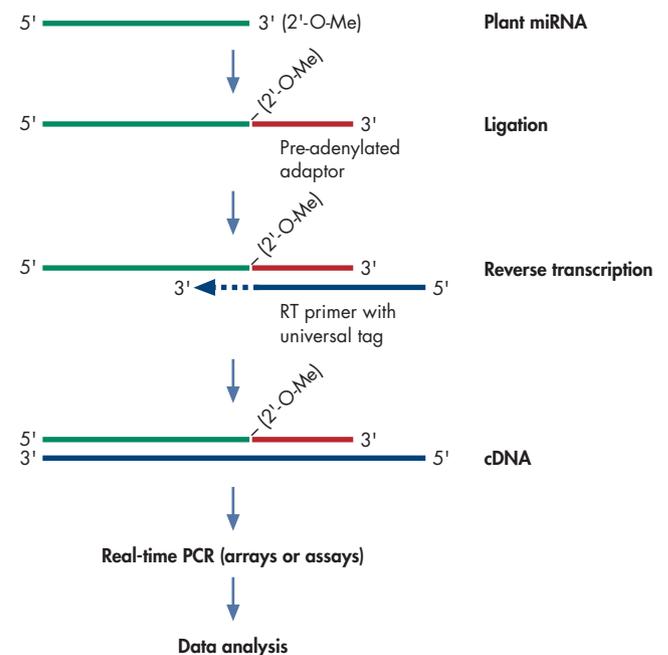
Unmatched miRNA plant qPCR assay content covering miRBase v21: cataloged and custom designs

Verified species

- Rice
- Corn
- Soybean
- Potato
- *Arabidopsis thaliana*

Custom species

- Any miRNA!



For up-to-date licensing information and product-specific disclaimers, see the respective QIAGEN kit handbook or user manual. QIAGEN kit handbooks and user manuals are available at www.qiagen.com or can be requested from QIAGEN Technical Services or your local distributor.

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