



**miRCURY™ LNA microRNA Array**  
Spike-in miRNA kit

**Instruction manual**  
for product # 208040

## Literature citations

Please refer to miRCURY™ LNA microRNA Array Spike-in miRNA kit when describing a procedure for publication using this product.

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# Product summary

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### Content

#### **miRCURY™ LNA microRNA Array, Spike-in miRNA kit**

2 vials each containing 10 synthetic unlabeled miRNAs, dried-down.

Each vial is sufficient for minimum 24 rxns.

1 vial containing 500 µL nuclease-free water.

### Additional required material

#### **miRCURY™ LNA microRNA Array, microarray kits**

Pre-spotted microarrays for determination of miRNA expression patterns.

The arrays contains capture probes for the ten spike-in miRNAs.

#### **miRCURY™ LNA microRNA Array, ready to spot probe set**

Capture probe set for spotting of microarrays. The set contains capture probes for all annotated miRNAs in miRBase 9.2 as well as for the ten spike-in miRNAs.

#### **miRCURY™ LNA microRNA Power labeling kit**

Fluorescent labeling of miRNAs from total RNA samples ready for hybridization to arrays (cat# 208031-A, 208032-A).

#### **For manual hybridization**

Microarray Hybridization Chamber - SureHyb (Agilent product # G2534A)

Glass Coplin staining jar/dish or equivalent for manual hybridization.



## Product description

The spike-in kit contains 10 different synthetic unlabeled miRNAs in a range of concentrations. The miRNAs can be spiked into an RNA sample prior to labeling and the synthetic spike-in kit will hybridize to corresponding capture probes on the miRCURY™ LNA microRNA Array. The Spike-in miRNA kit has been designed and tested not to cross-react with endogenous miRNAs from human, mouse or rat. The spike-in kit is supplied with different concentrations of synthetic spike-in miRNAs aimed at spanning the whole intensity range of miRNAs in most tissue samples. The corresponding capture probes have been printed once in every subgrid, thus 32 times each.

Prior to use, the spike-in miRNAs must be dissolved in 30 µL of nuclease-free water. Leave the suspension on ice for 30 minutes to dissolve. Vortex and then spin to collect tube contents. Exiqon recommends to aliquot the dissolved spike-in miRNAs to avoid repeated freeze/thawing. For long-term storage, keep the vial at -80° C.

### Note

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: Use 1 µL of the spike-in miRNAs in each labeling reaction.  
For detailed procedure, please see the instruction manual of the miRCURY™ LNA microRNA Array Power labeling kit.

When the spike-in kit is added to labeling reactions before a dual-color array hybridization, the signals from the spike-in capture probes can be used

- as a control of the labeling reaction and hybridization
- as a help in deciding scanner settings between channels
- as a control of the data normalization procedure
- to estimate the variance of replicated measurements within arrays
- to assess technical variability between different parts of the array



The table shows the annotations of the spike-in miRNA capture probes available in the GAL-file for miRCURY™ LNA microRNA Arrays and in the microplate layout file for the miRCURY™ LNA microRNA Arrays ready-to-spot probe set. The files are located at [www.exiqon.com/miRCURY/array](http://www.exiqon.com/miRCURY/array)

Probe ID	Positive controls	Validated spike-in miRNA control in these organisms
14261	spike_control_a	hsa, mmu, rno, dro, cel
14263	spike_control_b	hsa, mmu, cel
14264	spike_control_c	hsa, mmu, rno, dro, cel
10904	spike_control_d	hsa, mmu, dro, cel
10906	spike_control_e	hsa, mmu, rno
14262	spike_control_f	hsa, mmu, rno
10905	spike_control_g	hsa, mmu, rno, dro, cel
10907	spike_control_h	hsa, mmu, rno, dro, cel
14257	spike_control_i	hsa, mmu, cel
10899	spike_control_j	hsa, mmu, rno, dro, cel

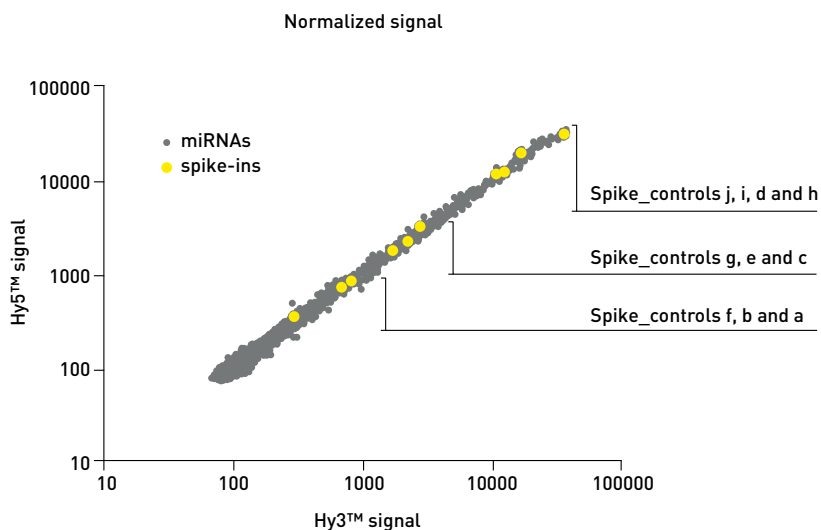
The spike-in miRNA control capture probes were compared against the genomic sequence of hsa, mmu, rno, dre, dme, cel and ath with the BLAST tools at [www.ensembl.org](http://www.ensembl.org) and [www.arabidopsis.org](http://www.arabidopsis.org). Other organisms may also be valid. Only spike-in miRNA control capture probes with less than 100% match to genomic target are in this table.



## Guidelines for the spike-in miRNA signal distribution

The figure below shows the distribution of the 10 spike-in miRNAs spiked into 1  $\mu\text{g}$  of total RNA from human lung samples. The concentration of the various spike-in miRNAs are optimized so the signal intensities of these spike-in miRNAs are in the dynamic range of naturally expressed miRNAs in most tissues.

Note: The position of signals from the Spike-in miRNA kit compared to signals from miRNAs will depend upon the miRNA expression level in the sample.



1  $\mu\text{L}$  of the spike-in miRNAs were spiked into a sample of 1  $\mu\text{g}$  total RNA from human lung labeled with Hy3™. Another, 1  $\mu\text{L}$  of spike-in miRNAs were spiked into 1  $\mu\text{g}$  RNA from human lung and labeled with Hy5™. Labeling was performed using the miRCURY™ LNA microRNA Array labeling kit. Hybridization was performed using a Tecan HS4800 hybridization station.



# Storage

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Dissolve the Spike-in miRNA in 30  $\mu$ l of nuclease-free water (supplied) upon receipt. Leave the suspension on ice for 30 minutes to dissolve. Vortex and then spin to collect tube contents. Store the dissolved spike-in miRNAs at  $-20^{\circ}$  C until use and avoid repeated cycles of freeze/thawing.

Exiqon recommends to aliquot the dissolved spike-in miRNAs into smaller volumes to avoid repeated freeze/thawing. For long-term storage, keep the vial at  $-80^{\circ}$  C.



# Related products

Exiqon offers a tool kit enabling new discoveries concerning the expression, function, and spatial distribution of miRNAs:

## **miRCURY™ LNA microRNA Power Labeling kit**

For fluorescent labeling of miRNAs from total RNA samples ready for array hybridization (product # 208031-A, 208032-A).

## **miRCURY™ LNA microRNA Array, microarray kit**

Pre-printed miRCURY™ LNA microRNA Array microarray slides, available in pack sizes of 3, 6 and 24 (product # 208000-A, 208001-A, 208002-A).

## **miRCURY™ LNA microRNA Array, ready-to-spot probe set**

Ready-to-spot oligo set for direct printing of arrays, or coupling in bead-based applications (product # 208010-A).

## **miRCURY™ LNA microRNA Array, Hybridization buffer**

5 mL hybridization buffer optimal for miRNA hybridization to the miRCURY™ LNA microRNA Arrays (product # 208022).

## **miRCURY™ LNA microRNA Array, Wash buffer kit**

125 mL salt buffer and 15 mL detergent optimal for wash of miRCURY™ LNA microRNA Arrays. (product # 208021).

## **miRCURY™ LNA microRNA Detection**

For in situ hybridization and northern blotting of all annotated miRNAs.

## **miRCURY™ LNA microRNA Knockdown**

miRNA knockdown probes: determine or confirm miRNA function.

## **miRCURY™ LNA microRNA Real-time PCR**

Quickly and accurately determine miRNA expression using real-time PCR system. Available soon.



# References

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- The microRNA Registry  
Griffiths-Jones S. *Nucleic Acids Research*, 2004, 32, Database Issue, D109-11
- miRBase, Wellcome Trust Sanger Institute. <http://microrna.sanger.ac.uk>
- [www.exiqon.com/miRCURY/array](http://www.exiqon.com/miRCURY/array)







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