

# miRCURY LNA™ miRNA Focus PCR Panels

## Rat Diabetes Product Data Sheet

Cat. no. 339325 YARN-215Z

For mature miRNA expression profiling using real-time PCR

Format	Suitable real-time cyclers	Plate	Cat. no.
A	Applied Biosystems® models 5700, 7000, 7300, 7500, 7700, 7900HT, ViiA™ 7 (96-well block); Bio-Rad® models iCycler®, iQ™5, MyiQ™, MyiQ2; Bio-Rad/MJ Research Chromo4™; Eppendorf® MasterCycler® ep realplex models 2, 2s, 4, 4s; Stratagene® models Mx3005P®, Mx3000P®; Takara: TP-800	96-well	YARN-215ZA
C	Applied Biosystems models 7500 (Fast block), 7900HT (Fast block), StepOnePlus™, ViiA 7 (Fast block)	96-well	YARN-215ZC
D	Bio-Rad CFX96™; Bio-Rad/MJ Research models DNA Engine Opticon®, DNA Engine Opticon 2; Stratagene Mx4000®	96-well	YARN-215ZD
E	Applied Biosystems® models 7900HT (384-well block), ViiA™ 7 (384-well block); Bio-Rad CFX384™	384-well	YARN-215ZE
F	Roche® LightCycler® 480 (96-well block)	96-well	YARN-215ZF
G	Roche® LightCycler® 480 (384-well block)	384-well	YARN-215ZG

### Description

The Rat Diabetes miRCURY LNA™ miRNA Focus PCR Panel profiles the expression of 84 miRNAs experimentally identified and/or bioinformatically predicted to epigenetically regulate diabetes-related biological processes. During food consumption, insulin release from pancreatic beta cells activates insulin signaling and cellular uptake of glucose, resulting in synthesis and storage of carbohydrates and lipids. Insulin-resistant individuals are vulnerable to multiple pathophysiologies, including development of non-insulin dependent diabetes mellitus (NIDDM), or type 2 diabetes. Insulin resistance is a key link between obesity and NIDDM, and may be caused by dysregulation of the complex signaling between liver, adipose tissue, skeletal muscle, and pancreatic beta cells. Many miRNAs are differentially regulated in one or more tissues (liver, adipose, skeletal muscle, and pancreatic beta islets) during insulin resistance and diabetes progression. Since each miRNA may regulate hundreds of genes, one miRNA could alter the expression of a different set of genes in each tissue, depending on the gene's tissue-specific expression. This array includes miRNAs differentially regulated in specific tissues as observed by experimental research on insulin resistance and diabetes progression. These experimentally identified miRNAs were also analyzed bioinformatically to determine if they may regulate common diabetes-related genes. The same bioinformatics process was also used to suggest potential novel diabetes-related miRNAs to include on the array. A set of controls present on each array enables data analysis using the  $\Delta\Delta C_T$  method of relative quantification, assessment of reverse transcription performance, and assessment of PCR performance. Using SYBR Green real-time PCR, the expression of a focused panel of miRNAs related to type 2 diabetes and insulin resistance can be easily and reliably analyzed with this miRCURY LNA™ miRNA Focus PCR Panel.

For further details, consult the *miRCURY LNA™ miRNA Focus PCR Panels Handbook*.

Array Layout

	1	2	3	4	5	6	7	8	9	10	11	12
A	rno-let-7e-5p	rno-let-7f-5p	rno-let-7f-5p	rno-miR-103-3p	rno-miR-107-3p	rno-miR-125a-5p	rno-miR-125b-5p	rno-miR-126a-5p	rno-miR-127-3p	rno-miR-129-2-3p	rno-miR-129-5p	rno-miR-130a-3p
B	rno-miR-133a-3p	rno-miR-133b-3p	rno-miR-135b-5p	rno-miR-143-3p	rno-miR-146a-5p	rno-miR-150-5p	rno-miR-152-3p	rno-miR-15b-5p	rno-miR-183-5p	rno-miR-184	rno-miR-185-5p	rno-miR-190a-5p
C	rno-miR-193a-3p	rno-miR-194-5p	rno-miR-195-5p	rno-miR-196b-5p	rno-miR-199a-5p	rno-miR-19a-3p	rno-miR-200a-3p	rno-miR-204-5p	rno-miR-206-3p	rno-miR-207	rno-miR-212-3p	rno-miR-214-3p
D	rno-miR-21-5p	rno-miR-23a-3p	rno-miR-23b-3p	rno-miR-24-3p	rno-miR-26a-5p	rno-miR-26b-5p	rno-miR-27a-3p	rno-miR-27b-3p	rno-miR-294	rno-miR-296-5p	rno-miR-298-5p	rno-miR-29a-3p
E	rno-miR-29b-3p	rno-miR-29c-3p	rno-miR-301a-3p	rno-miR-30a-5p	rno-miR-30c-5p	rno-miR-320-3p	rno-miR-324-5p	rno-miR-325-3p	rno-miR-330-5p	rno-miR-335	rno-miR-340-5p	rno-miR-344b-1-3p
F	rno-miR-34a-5p	rno-miR-34b-5p	rno-miR-34c-5p	rno-miR-3570	rno-miR-3596d	rno-miR-361-5p	rno-miR-365-3p	rno-miR-370-3p	rno-miR-375-3p	rno-miR-376a-3p	rno-miR-377-3p	rno-miR-380-5p
G	rno-miR-381-3p	rno-miR-382-5p	rno-miR-384-5p	rno-miR-433-3p	rno-miR-450a-5p	rno-miR-451-5p	rno-miR-490-3p	rno-miR-503-5p	rno-miR-542-3p	rno-miR-7a-5p	rno-miR-96-5p	rno-miR-99b-5p
H	cel-miR-39-3p	cel-miR-39-3p	U6 snRNA (v2)	5S rRNA	RNU5G	RNU1A1	UniSp2	UniSp4	UniSp5	UniSp6	UniSp3	UniSp3

## miRNA Table

Well	miRNA ID	Accession #	Assay Catalog #	Well	miRNA ID	Accession #	Assay Catalog #
A01	rno-let-7e-5p	MIMAT0000066	YP00205711	E01	rno-miR-29b-3p	MIMAT0000100	YP00204679
A02	rno-let-7f-5p	MIMAT0000067	YP00204359	E02	rno-miR-29c-3p	MIMAT0000681	YP00204729
A03	rno-let-7i-5p	MIMAT0000415	YP00204394	E03	rno-miR-301a-3p	MIMAT0000688	YP00205601
A04	rno-miR-103-3p	MIMAT0000101	YP00204063	E04	rno-miR-30a-5p	MIMAT0000087	YP00205695
A05	rno-miR-107-3p	MIMAT0000104	YP00204468	E05	rno-miR-30c-5p	MIMAT0000244	YP00204783
A06	rno-miR-125a-5p	MIMAT0000443	YP00204339	E06	rno-miR-320-3p	MIMAT0000510	YP00206042
A07	rno-miR-125b-5p	MIMAT0000423	YP00205713	E07	rno-miR-324-5p	MIMAT0000555	YP02119698
A08	rno-miR-126a-5p	MIMAT0000444	YP00206010	E08	rno-miR-325-3p	MIMAT0004640	YP00205088
A09	rno-miR-127-3p	MIMAT0000446	YP00204048	E09	rno-miR-330-5p	MIMAT0004693	YP00204372
A10	rno-miR-129-2-3p	MIMAT0004605	YP00206067	E10	rno-miR-335	MIMAT0000765	YP02119293
A11	rno-miR-129-5p	MIMAT0000242	YP00204534	E11	rno-miR-340-5p	MIMAT0004692	YP00206068
A12	rno-miR-130a-3p	MIMAT0000425	YP00204658	E12	rno-miR-344b-1-3p	MIMAT0017894	YP02119399
B01	rno-miR-133a-3p	MIMAT0000427	YP00204788	F01	rno-miR-34a-5p	MIMAT0000255	YP00204486
B02	rno-miR-133b-3p	MIMAT0000770	YP00206058	F02	rno-miR-34b-5p	MIMAT0000382	YP00205075
B03	rno-miR-135b-5p	MIMAT0000758	YP00204130	F03	rno-miR-34c-5p	MIMAT0000686	YP00205659
B04	rno-miR-143-3p	MIMAT0000849	YP00205106	F04	rno-miR-3570	MIMAT0017850	YP02116004
B05	rno-miR-146a-5p	MIMAT0000449	YP00204688	F05	rno-miR-3596d	MIMAT0017823	YP02100068
B06	rno-miR-150-5p	MIMAT0000451	YP00204660	F06	rno-miR-361-5p	MIMAT0000703	YP00206054
B07	rno-miR-152-3p	MIMAT0000438	YP00204294	F07	rno-miR-365-3p	MIMAT0000710	YP00204622
B08	rno-miR-15b-5p	MIMAT0000417	YP00204243	F08	rno-miR-370-3p	MIMAT0000722	YP00204011
B09	rno-miR-183-5p	MIMAT0000261	YP00206030	F09	rno-miR-375-3p	MIMAT0000728	YP00204362
B10	rno-miR-184	MIMAT0000454	YP00204601	F10	rno-miR-376a-3p	MIMAT0000740	YP00205059
B11	rno-miR-185-5p	MIMAT0000455	YP00206037	F11	rno-miR-377-3p	MIMAT0003123	YP00205538
B12	rno-miR-190a-5p	MIMAT0000458	YP00204763	F12	rno-miR-380-5p	MIMAT0000744	YP00205165
C01	rno-miR-193a-3p	MIMAT0000459	YP00204591	G01	rno-miR-381-3p	MIMAT0003199	YP00205540
C02	rno-miR-194-5p	MIMAT0000460	YP00204080	G02	rno-miR-382-5p	MIMAT0000737	YP00204169
C03	rno-miR-195-5p	MIMAT0000461	YP00205869	G03	rno-miR-384-5p	MIMAT0004745	YP00205189
C04	rno-miR-196b-5p	MIMAT0001080	YP00204555	G04	rno-miR-433-3p	MIMAT0001627	YP00204036
C05	rno-miR-199a-5p	MIMAT0000231	YP00204494	G05	rno-miR-450a-5p	MIMAT0001547	YP00205546
C06	rno-miR-19a-3p	MIMAT0000073	YP00205862	G06	rno-miR-451-5p	MIMAT0001631	YP02119305
C07	rno-miR-200a-3p	MIMAT0000682	YP00204707	G07	rno-miR-490-3p	MIMAT0002806	YP00205999
C08	rno-miR-204-5p	MIMAT0000265	YP00206072	G08	rno-miR-503-5p	MIMAT0003188	YP00205094
C09	rno-miR-206-3p	MIMAT0000462	YP00206073	G09	rno-miR-542-3p	MIMAT0003389	YP00205444
C10	rno-miR-207	MIMAT0003115	YP00205509	G10	rno-miR-7a-5p	MIMAT0000677	YP02119694
C11	rno-miR-212-3p	MIMAT0000659	YP00206022	G11	rno-miR-96-5p	MIMAT0000095	YP00204417
C12	rno-miR-214-3p	MIMAT0000885	YP00205512	G12	rno-miR-99b-5p	MIMAT0000689	YP00205983
D01	rno-miR-21-5p	MIMAT0000076	YP00204230	H01	cel-miR-39-3p	MIMAT0000010	YP00203952
D02	rno-miR-23a-3p	MIMAT0000078	YP00204772	H02	cel-miR-39-3p	MIMAT0000010	YP00203952
D03	rno-miR-23b-3p	MIMAT0000125	YP02119756	H03	U6 snRNA (v2)	N/A	YP02119464
D04	rno-miR-24-3p	MIMAT0000080	YP00204260	H04	5S rRNA	N/A	YP00203906
D05	rno-miR-26a-5p	MIMAT0000082	YP00206023	H05	RNU5G	N/A	YP00203908
D06	rno-miR-26b-5p	MIMAT0000083	YP00204172	H06	RNU1A1	N/A	YP00203909
D07	rno-miR-27a-3p	MIMAT0000084	YP00206038	H07	UniSp2	N/A	YP00203950
D08	rno-miR-27b-3p	MIMAT0000419	YP00205915	H08	UniSp4	N/A	YP00203953
D09	rno-miR-294	MIMAT0012848	YP02108276	H09	UniSp5	N/A	YP00203955
D10	rno-miR-296-5p	MIMAT0000690	YP00204436	H10	UniSp6	N/A	YP00203954
D11	rno-miR-298-5p	MIMAT0000376	YP00205092	H11	UniSP3	N/A	YP02119288
D12	rno-miR-29a-3p	MIMAT0000086	YP00204698	H12	UniSP3	N/A	YP02119288

## Functional Groupings

**Differentially Expressed in all 4 Diabetes Target Tissues:** rno-let-7f-5p,rno-miR-107-3p,rno-miR-130a-3p,rno-miR-133a-3p,rno-miR-193a-3p,rno-miR-206-3p,rno-miR-27a-3p,rno-miR-296-5p,rno-miR-325-3p,rno-miR-376a-3p.

### **Differentially Expressed in 3 Diabetes Target Tissues**

Liver; Adipose Tissue & Skeletal Muscle: rno-miR-125a-5p,rno-miR-125b-5p,rno-miR-127-3p,rno-miR-150-5p,rno-miR-194-5p,rno-miR-199a-5p,rno-miR-26a-5p,rno-miR-29a-3p,rno-miR-29b-3p,rno-miR-29c-3p,rno-miR-301a-3p,rno-miR-324-5p,rno-miR-335.

Liver; Adipose Tissue & Pancreatic Beta Cells: rno-let-7i-5p,rno-miR-103-3p,rno-miR-135b-5p,rno-miR-143-3p,rno-miR-146a-5p,rno-miR-15b-5p,rno-miR-185-5p,rno-miR-190a-5p,rno-miR-195-5p,rno-miR-196b-5p,rno-miR-200a-3p,rno-miR-204-5p,rno-miR-21-5p,rno-miR-212-3p,rno-miR-214-3p,rno-miR-294,rno-miR-298-5p,rno-miR-330-5p,rno-miR-34a-5p,rno-miR-365-3p,rno-miR-375-3p,rno-miR-377-3p,rno-miR-382-5p,rno-miR-433-3p.

Liver; Skeletal Muscle & Pancreatic Beta Cells: rno-miR-152-3p,rno-miR-183-5p.

Adipose Tissue; Skeletal Muscle & Pancreatic Beta Cells: rno-let-7e-5p,rno-miR-450a-5p,rno-miR-503-5p,rno-miR-7a-5p.

### **Differentially Expressed in 2 Diabetes Target Tissues**

Liver & Adipose Tissue: rno-miR-129-2-3p,rno-miR-133b-3p,rno-miR-19a-3p,rno-miR-207,rno-miR-34c-5p,rno-miR-370-3p,rno-miR-381-3p,rno-miR-99b-5p.

Liver & Skeletal Muscle: rno-miR-451-5p.

Liver & Pancreatic Beta Cells: rno-miR-380-5p.

Adipose Tissue & Skeletal Muscle: rno-miR-129-5p,rno-miR-23a-3p,rno-miR-23b-3p,rno-miR-24-3p,rno-miR-26b-5p,rno-miR-27b-3p,rno-miR-30a-5p,rno-miR-30c-5p,rno-miR-361-5p,rno-miR-490-3p,rno-miR-542-3p.

Adipose Tissue & Pancreatic Beta Cells: rno-miR-184,rno-miR-320-3p,rno-miR-34b-5p,rno-miR-96-5p.

Skeletal Muscle & Pancreatic Beta Cells: rno-miR-126a-5p.

**Predicted to Target Diabetes-Related Genes:** rno-miR-340-5p,rno-miR-344b-1-3p,rno-miR-3570,rno-miR-3596d,rno-miR-384-5p.

## Ordering Information

Product	Contents	Cat. no.
miRCURY LNA miRNA Focus PCR Panels	miRCURY LNA miRNA PCR Panels for application-based miRNome profiling, available in 96-well or 384-well format; for SYBR® Green-based detection	339325
miRCURY LNA miRNA miRNome PCR Panels	miRCURY LNA miRNA PCR Panels for PCR-based miRNome profiling, available in 384-well format; for SYBR® Green-based detection	339322
miRCURY LNA miRNA QC PCR Panel	miRCURY LNA miRNA PCR Panel of quality control assays, available in 96-well or 384-well format; for SYBR® Green-based detection	339331
miRCURY LNA miRNA Custom PCR Panels	8 identical, ready-to-use 96- or 384-well plates; each well contains primers sufficient for one 10 µl reaction; for SYBR® Green-based detection	339330
miRCURY LNA Custom PCR Panel Additional Plate	Additional miRCURY LNA Custom PCR Panel plates; set of 4 plates; only available in addition to the base plates ordered through the core product (cat. no. 339330)	339332
miRCURY LNA miRNA PCR Assays	Contains forward and reverse primers for 200 SYBR® Green-based, real-time qPCR reactions, 166 EvaGreen-based digital PCR reactions for Nanoplate 8.5k or 50 EvaGreen-based digital PCR reactions for Nanoplate 26k	339306
miRCURY LNA miRNA Probe PCR Assays	Complete premixed assays containing LNA-enhanced target-specific forward primer and probe. For 200 reactions.	339350
miRCURY LNA miRNA Custom Probe PCR Assays	Custom-designed, target-specific forward primer and probe for any user-defined miRNA target. Complete premixed assay for 200 reactions.	339351

## Related Products

Product	Contents	Cat. no.
miRCURY LNA RT Kit	For 8–64 cDNA synthesis reactions: 5x RT SYBR Green Reaction Buffer, 5x RT Probe Reaction Buffer, 10x RT Enzyme Mix, UniSp6, RNA Spike-in template, RNase-Free Water	339340
RNA Spike-In Kit, For RT	Contains the UniSp2, UniSp4, and UniSp5 RNA Spike-in Template Mix and the cel-miR-39-3p RNA Spike-in Template	339390
miRCURY LNA SYBR® Green PCR Kits (200)	For 200 reactions: 2X miRCURY SYBR Green Master Mix, RNase-Free Water	339345
miRCURY LNA SYBR® Green PCR Kits (600)	For 600 reactions: 2X miRCURY SYBR Green Master Mix, RNase-Free Water	339346
miRCURY LNA SYBR® Green PCR Kits (4000)	For 4000 reactions: 2X miRCURY SYBR Green Master Mix, RNase-Free Water	339347
miRCURY LNA Probe PCR Kit (200)	For 200 reactions: 2X QuantiNova Probe Master Mix, 10X miRCURY Probe Univ. Primer, Rox Reference Dye, RNase-Free Water	339371
miRCURY LNA Probe PCR Kit (800)	For 800 reactions: 2X QuantiNova Probe Master Mix, 10X miRCURY Probe Univ. Primer, Rox Reference Dye, RNase-Free Water	339372
miRCURY LNA Probe PCR Kit (4000)	For 4000 reactions: 2X QuantiNova Probe Master Mix, 10X miRCURY Probe Univ. Primer, Rox Reference Dye, RNase-Free Water	339373
miRCURY LNA miRNA PCR Starter Kit	Two miRCURY LNA PCR Assays of your choice, spike-in control Assay (UniSp6), one candidate endogenous control assay (miR-103-3p) and all reagents for 20 reverse transcription reactions and 100 PCR amplifications; for SYBR® Green-based qPCR detection	339320

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## Important

The miRCURY LNA™ miRNA PCR Panels are Ready-to-Use and designed for optimal performance with the miRCURY LNA RT Kit and the miRCURY LNA SYBR® Green PCR Kit. The performance of the primer sets will be affected when used in combination with less than optimal reagents. Use the miRCURY LNA miRNA PCR Panel Handbook for experiment setup. RNA work requires specific handling and precautions should be taken to prevent RNase contamination and degradation of the RNA sample and reagents.

## Shipping and storage

The Ready-to-Use miRCURY LNA miRNA PCR Panels are shipped at room temperature and can be stored at 4°C for at least 6 months. For long term storage, it is recommended to place the panels at -20°C. Under these conditions, the LNA PCR primers are stable for at least 6 months after receipt.

## Intended use

miRCURY LNA miRNA PCR Assays are intended for molecular biology applications. This product is not intended for the diagnosis, prevention or treatment of a disease.

## Safety information

When working with chemicals, always wear a suitable lab coat, disposable gloves, and protective goggles. For more information, please consult the appropriate safety data sheets (SDSs). These are available online in convenient and compact PDF format at [www.qiagen.com/safety](http://www.qiagen.com/safety) where you can find, view and print the SDS for each QIAGEN kit and kit component.

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