

miRCURY LNA™ miRNA Focus PCR Panels

Human Pain: Neuropathic & Inflammatory Product Data Sheet

Cat. no. 339325 YAHS-220Z

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	YAHS-220ZA
C	Applied Biosystems models 7500 (Fast block), 7900HT (Fast block), StepOnePlus™, ViiA 7 (Fast block)	96-well	YAHS-220ZC
D	Bio-Rad CFX96™; Bio-Rad/MJ Research models DNA Engine Opticon®, DNA Engine Opticon 2; Stratagene Mx4000®	96-well	YAHS-220ZD
E	Applied Biosystems® models 7900HT (384-well block), ViiA™ 7 (384-well block); Bio-Rad CFX384™	384-well	YAHS-220ZE
F	Roche® LightCycler® 480 (96-well block)	96-well	YAHS-220ZF
G	Roche® LightCycler® 480 (384-well block)	384-well	YAHS-220ZG

Description

The Human Pain: Neuropathic & Inflammatory miRCURY LNA™ miRNA Focus PCR Panel profiles the expression of 84 miRNAs involved in the transduction, maintenance, and modulation of pain responses. Noxious environmental stimuli, tissue damage, and disease all evoke pain. Since it afflicts up to 20% of the population at any given time, pain provides both a massive therapeutic target and a route to understanding the molecular mechanisms of nervous system function. While neuropathic pain often results from damage to the peripheral (PNS) or central nervous system (CNS), peripheral tissue damage and/or inflammation generally initiates inflammatory pain. Neuropathic and inflammatory pain both cause activation of damage-sensing neurons (nociceptors) that innervate the skin, muscle and viscera and terminate in the laminae of the spinal cord dorsal horn. Transduction of pain signals requires the expression of specific proteins such as ion channels and neurotransmitter receptors. Because miRNAs should regulate genes encoding components of molecular pain pathways, researchers have hypothesized that they may be critically important master switches modulating pain. To better understand their importance and role in regulating nociception and pain circuitries, several miRNAs profiling experiments have demonstrated differential miRNA expression in rodent pain models such as contusive spinal cord injury, inflammatory muscle pain, and ischemia-reperfusion injury. The differential expression of miRNA in blood from patients with complex regional pain syndrome suggests that miRNA may also prove to be valuable biomarkers of pain. The differentially expressed miRNAs in these studies have also been shown and/or predicted to regulate genes involved in pain molecular mechanisms such as apoptosis and inflammation. This array analyzes the expression of miRNA found to be differentially expressed in typical models of pain. A set of controls present on each array enables data analysis using the $\Delta\Delta CT$ 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 pain-related miRNAs 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	hsa-miR-1-3p	hsa-miR-100-5p	hsa-miR-103a-3p	hsa-miR-106b-5p	hsa-miR-107	hsa-miR-10a-5p	hsa-miR-124-3p	hsa-miR-125b-5p	hsa-miR-126-3p	hsa-miR-127-3p	hsa-miR-128-3p	hsa-miR-129-2-3p
B	hsa-miR-130b-3p	hsa-miR-132-3p	hsa-miR-132-5p	hsa-miR-133a-3p	hsa-miR-133b	hsa-miR-134-5p	hsa-miR-137-3p	hsa-miR-138-5p	hsa-miR-142-3p	hsa-miR-142-5p	hsa-miR-143-3p	hsa-miR-145-5p
C	hsa-miR-146a-5p	hsa-miR-146b-5p	hsa-miR-152-3p	hsa-miR-154-5p	hsa-miR-155-5p	hsa-miR-15b-5p	hsa-miR-16-5p	hsa-miR-17-5p	hsa-miR-181a-5p	hsa-miR-182-5p	hsa-miR-183-5p	hsa-miR-199a-3p
D	hsa-miR-203a-3p	hsa-miR-204-3p	hsa-miR-206	hsa-miR-208a-3p	hsa-miR-20a-5p	hsa-miR-20b-5p	hsa-miR-210-3p	hsa-miR-214-3p	hsa-miR-21-5p	hsa-miR-219a-2-3p	hsa-miR-219a-5p	hsa-miR-221-3p
E	hsa-miR-223-3p	hsa-miR-23b-3p	hsa-miR-25-3p	hsa-miR-29a-3p	hsa-miR-302d-3p	hsa-miR-30a-3p	hsa-miR-30b-5p	hsa-miR-30c-5p	hsa-miR-30d-5p	hsa-miR-31-5p	hsa-miR-323a-3p	hsa-miR-324-5p
F	hsa-miR-331-5p	hsa-miR-338-5p	hsa-miR-339-5p	hsa-miR-34a-5p	hsa-miR-34c-5p	hsa-miR-365a-3p	hsa-miR-369-5p	hsa-miR-374b-5p	hsa-miR-376b-5p	hsa-miR-378a-3p	hsa-miR-379-3p	hsa-miR-451a
G	hsa-miR-487b-3p	hsa-miR-495-3p	hsa-miR-505-5p	hsa-miR-543	hsa-miR-665	hsa-miR-7-5p	hsa-miR-92a-3p	hsa-miR-92b-3p	hsa-miR-93-5p	hsa-miR-96-5p	hsa-miR-98-5p	hsa-miR-99a-5p
H	cel-miR-39-3p	cel-miR-39-3p	SNORD44 (hsa)	SNORD388 (hsa)	SNORD49A (hsa)	U6 snRNA (v2)	UniSp2	UniSp4	UniSp5	UniSp6	UniSp3	UniSp3

miRNA Table

Well	miRNA ID	Accession #	Assay Catalog #	Well	miRNA ID	Accession #	Assay Catalog #
A01	hsa-miR-1-3p	MIMAT0000416	YP00204344	E01	hsa-miR-223-3p	MIMAT0000280	YP00205986
A02	hsa-miR-100-5p	MIMAT0000098	YP00205689	E02	hsa-miR-23b-3p	MIMAT0000418	YP02119314
A03	hsa-miR-103a-3p	MIMAT0000101	YP00204063	E03	hsa-miR-25-3p	MIMAT0000081	YP00204361
A04	hsa-miR-106b-5p	MIMAT0000680	YP00205884	E04	hsa-miR-29a-3p	MIMAT0000086	YP00204698
A05	hsa-miR-107	MIMAT0000104	YP00204468	E05	hsa-miR-302d-3p	MIMAT0000718	YP00204311
A06	hsa-miR-10a-5p	MIMAT0000253	YP00204778	E06	hsa-miR-30a-3p	MIMAT0000088	YP00204457
A07	hsa-miR-124-3p	MIMAT0000422	YP00206026	E07	hsa-miR-30b-5p	MIMAT0000420	YP00204765
A08	hsa-miR-125b-5p	MIMAT0000423	YP00205713	E08	hsa-miR-30c-5p	MIMAT0000244	YP00204783
A09	hsa-miR-126-3p	MIMAT0000445	YP00204227	E09	hsa-miR-30d-5p	MIMAT0000245	YP00206047
A10	hsa-miR-127-3p	MIMAT0000446	YP00204048	E10	hsa-miR-31-5p	MIMAT0000089	YP00204236
A11	hsa-miR-128-3p	MIMAT0000424	YP00205995	E11	hsa-miR-323a-3p	MIMAT0000755	YP00204278
A12	hsa-miR-129-2-3p	MIMAT0004605	YP00206067	E12	hsa-miR-324-5p	MIMAT0000761	YP02119473
B01	hsa-miR-130b-3p	MIMAT0000691	YP00204317	F01	hsa-miR-331-5p	MIMAT0004700	YP00204423
B02	hsa-miR-132-3p	MIMAT0000426	YP00206035	F02	hsa-miR-338-5p	MIMAT0004701	YP00204114
B03	hsa-miR-132-5p	MIMAT0004594	YP00204552	F03	hsa-miR-339-5p	MIMAT0000764	YP00206007
B04	hsa-miR-133a-3p	MIMAT0000427	YP00204788	F04	hsa-miR-34a-5p	MIMAT0000255	YP00204486
B05	hsa-miR-133b	MIMAT0000770	YP00206058	F05	hsa-miR-34c-5p	MIMAT0000686	YP00205659
B06	hsa-miR-134-5p	MIMAT0000447	YP00205989	F06	hsa-miR-365a-3p	MIMAT0000710	YP00204622
B07	hsa-miR-137-3p	MIMAT0000429	YP00206062	F07	hsa-miR-369-5p	MIMAT0001621	YP00206014
B08	hsa-miR-138-5p	MIMAT0000430	YP00206078	F08	hsa-miR-374b-5p	MIMAT0004955	YP00204608
B09	hsa-miR-142-3p	MIMAT0000434	YP00204291	F09	hsa-miR-376b-5p	MIMAT0022923	YP02109956
B10	hsa-miR-142-5p	MIMAT0000433	YP00204722	F10	hsa-miR-378a-3p	MIMAT0000732	YP00205946
B11	hsa-miR-143-3p	MIMAT0000435	YP00205992	F11	hsa-miR-379-3p	MIMAT0004690	YP00204345
B12	hsa-miR-145-5p	MIMAT0000437	YP00204483	F12	hsa-miR-451a	MIMAT0001631	YP02119305
C01	hsa-miR-146a-5p	MIMAT0000449	YP00204688	G01	hsa-miR-487b-3p	MIMAT0003180	YP00204489
C02	hsa-miR-146b-5p	MIMAT0002809	YP02119310	G02	hsa-miR-495-3p	MIMAT0002817	YP00206015
C03	hsa-miR-152-3p	MIMAT0000438	YP00204294	G03	hsa-miR-505-5p	MIMAT0004776	YP00205657
C04	hsa-miR-154-5p	MIMAT0000452	YP00204518	G04	hsa-miR-543	MIMAT0004954	YP00204447
C05	hsa-miR-155-5p	MIMAT0000646	YP02119311	G05	hsa-miR-665	MIMAT0004952	YP00204710
C06	hsa-miR-15b-5p	MIMAT0000417	YP00204243	G06	hsa-miR-7-5p	MIMAT0000252	YP02119317
C07	hsa-miR-16-5p	MIMAT0000069	YP00205702	G07	hsa-miR-92a-3p	MIMAT0000092	YP00204258
C08	hsa-miR-17-5p	MIMAT0000070	YP02119304	G08	hsa-miR-92b-3p	MIMAT0003218	YP00204384
C09	hsa-miR-181a-5p	MIMAT0000256	YP00206081	G09	hsa-miR-93-5p	MIMAT0000093	YP00204715
C10	hsa-miR-182-5p	MIMAT0000259	YP00206070	G10	hsa-miR-96-5p	MIMAT0000095	YP00204417
C11	hsa-miR-183-5p	MIMAT0000261	YP00206030	G11	hsa-miR-98-5p	MIMAT0000096	YP00204640
C12	hsa-miR-199a-3p	MIMAT0000232	YP00204536	G12	hsa-miR-99a-5p	MIMAT0000097	YP00204521
D01	hsa-miR-203a-3p	MIMAT0000264	YP00205914	H01	cel-miR-39-3p	MIMAT0000010	YP00203952
D02	hsa-miR-204-3p	MIMAT0022693	YP02113689	H02	cel-miR-39-3p	MIMAT0000010	YP00203952
D03	hsa-miR-206	MIMAT0000462	YP00206073	H03	SNORD44 (hsa)	N/A	YP00203902
D04	hsa-miR-208a-3p	MIMAT0000241	YP00205619	H04	SNORD388 (hsa)	N/A	YP00203901
D05	hsa-miR-20a-5p	MIMAT0000075	YP00204292	H05	SNORD49A (hsa)	N/A	YP00203904
D06	hsa-miR-20b-5p	MIMAT0001413	YP00204755	H06	U6 snRNA (v2)	N/A	YP02119464
D07	hsa-miR-210-3p	MIMAT0000267	YP00204333	H07	UniSp2	N/A	YP00203950
D08	hsa-miR-214-3p	MIMAT0000271	YP00204510	H08	UniSp4	N/A	YP00203953
D09	hsa-miR-21-5p	MIMAT0000076	YP00204230	H09	UniSp5	N/A	YP00203955
D10	hsa-miR-219a-2-	MIMAT0004675	YP00204674	H10	UniSp6	N/A	YP00203954
D11	hsa-miR-219a-5p	MIMAT0000276	YP00204780	H11	UniSP3	N/A	YP02119288
D12	hsa-miR-221-3p	MIMAT0000278	YP00204532	H12	UniSP3	N/A	YP02119288

Functional Groupings

Upregulated by Pain

Upregulated by Contusive Spinal Cord Injury: hsa-miR-1-3p, hsa-miR-145-5p, hsa-miR-146a-5p, hsa-miR-146b-5p, hsa-miR-152-3p, hsa-miR-15b-5p, hsa-miR-17-5p, hsa-miR-199a-3p, hsa-miR-203a-3p, hsa-miR-206, hsa-miR-20a-5p, hsa-miR-20b-5p, hsa-miR-21-5p, hsa-miR-214-3p, hsa-miR-223-3p, hsa-miR-30a-3p, hsa-miR-31-5p, hsa-miR-374b-5p, hsa-miR-378a-3p, hsa-miR-92a-3p, hsa-miR-92b-3p, hsa-miR-98-5p.

Upregulated by Ischemia-Reperfusion Injury: hsa-miR-132-5p, hsa-miR-133a-3p, hsa-miR-204-3p, hsa-miR-323a-3p, hsa-miR-365a-3p, hsa-miR-369-5p, hsa-miR-376b-5p, hsa-miR-505-5p, hsa-miR-665.

Downregulated by Pain

Downregulated by Contusive Spinal Cord Injury: hsa-miR-129-2-3p, hsa-miR-137-3p, hsa-miR-138-5p, hsa-miR-219a-2-3p, hsa-miR-219a-5p, hsa-miR-30b-5p, hsa-miR-30c-5p, hsa-miR-30d-5p, hsa-miR-323a-3p, hsa-miR-338-5p, hsa-miR-34a-5p, hsa-miR-379-3p, hsa-miR-495-3p, hsa-miR-543.

Downregulated by Inflammatory Pain: hsa-miR-10a-5p, hsa-miR-124-3p, hsa-miR-134-5p, hsa-miR-183-5p, hsa-miR-29a-3p, hsa-miR-98-5p, hsa-miR-99a-5p.

Downregulated by Ischemia-Reperfusion Injury: hsa-miR-146a-5p, hsa-miR-199a-3p, hsa-miR-210-3p.

Regulated by Contusive Spinal Cord Injury: hsa-miR-100-5p, hsa-miR-103a-3p, hsa-miR-107, hsa-miR-124-3p, hsa-miR-127-3p, hsa-miR-128-3p, hsa-miR-133a-3p, hsa-miR-133b, hsa-miR-154-5p, hsa-miR-181a-5p, hsa-miR-451a, hsa-miR-487b-3p, hsa-miR-99a-5p.

Complex Regional Pain Syndrome: hsa-miR-106b-5p, hsa-miR-126-3p, hsa-miR-130b-3p, hsa-miR-132-3p, hsa-miR-142-5p, hsa-miR-155-5p, hsa-miR-16-5p, hsa-miR-181a-5p, hsa-miR-20a-5p, hsa-miR-20b-5p, hsa-miR-221-3p, hsa-miR-25-3p, hsa-miR-93-5p.

Responsive to Antiinflammatories: hsa-miR-142-3p, hsa-miR-146b-5p, hsa-miR-203a-3p, hsa-miR-208a-3p, hsa-miR-21-5p, hsa-miR-219a-2-3p, hsa-miR-219a-5p, hsa-miR-302d-3p.

Responsive to Neuroprotection: hsa-miR-199a-3p, hsa-miR-210-3p, hsa-miR-219a-2-3p, hsa-miR-323a-3p, hsa-miR-324-5p, hsa-miR-331-5p, hsa-miR-365a-3p, hsa-miR-369-5p, hsa-miR-376b-5p, hsa-miR-7-5p.

Apoptosis: hsa-miR-1-3p, hsa-miR-106b-5p, hsa-miR-125b-5p, hsa-miR-128-3p, hsa-miR-133a-3p, hsa-miR-133b, hsa-miR-134-5p, hsa-miR-143-3p, hsa-miR-145-5p, hsa-miR-146a-5p, hsa-miR-15b-5p, hsa-miR-16-5p, hsa-miR-17-5p, hsa-miR-181a-5p, hsa-miR-183-5p, hsa-miR-199a-3p, hsa-miR-203a-3p, hsa-miR-206, hsa-miR-20a-5p, hsa-miR-21-5p, hsa-miR-210-3p, hsa-miR-214-3p, hsa-miR-221-3p, hsa-miR-25-3p, hsa-miR-29a-3p, hsa-miR-30b-5p, hsa-miR-30c-5p, hsa-miR-30d-5p, hsa-miR-31-5p, hsa-miR-323a-3p, hsa-miR-34a-5p, hsa-miR-34c-5p, hsa-miR-365a-3p, hsa-miR-378a-3p, hsa-miR-451a, hsa-miR-7-5p, hsa-miR-92a-3p, hsa-miR-98-5p.

Inflammation: hsa-miR-106b-5p, hsa-miR-125b-5p, hsa-miR-127-3p, hsa-miR-128-3p, hsa-miR-130b-3p, hsa-miR-145-5p, hsa-miR-146a-5p, hsa-miR-15b-5p, hsa-miR-16-5p, hsa-miR-17-5p, hsa-miR-181a-5p, hsa-miR-199a-3p, hsa-miR-20a-5p, hsa-miR-20b-5p, hsa-miR-21-5p, hsa-miR-210-3p, hsa-miR-23b-3p, hsa-miR-29a-3p, hsa-miR-30b-5p, hsa-miR-30c-5p, hsa-miR-30d-5p, hsa-miR-323a-3p, hsa-miR-34a-5p, hsa-miR-34c-5p, hsa-miR-365a-3p, hsa-miR-543, hsa-miR-93-5p, hsa-miR-98-5p, hsa-miR-99a-5p.

Associated with Neuropathic Pain in Specific Cells

Amygdala: hsa-miR-182-5p, hsa-miR-34c-5p.

Dorsal Root Ganglia Nociceptor: hsa-miR-103a-3p, hsa-miR-133a-3p, hsa-miR-134-5p, hsa-miR-143-3p, hsa-miR-20a-5p, hsa-miR-20b-5p, hsa-miR-21-5p, hsa-miR-7-5p.

Hippocampus: hsa-miR-125b-5p, hsa-miR-132-5p.

Immune Cells: hsa-miR-124-3p, hsa-miR-132-5p.

Insular Cortex: hsa-miR-133b.

Prefrontal Cortex: hsa-miR-181a-5p, hsa-miR-223-3p.

Spinal Dorsal Horn: hsa-miR-103a-3p, hsa-miR-124-3p, hsa-miR-134-5p, hsa-miR-23b-3p.

Other miRNA Involved in Pain: hsa-miR-339-5p, hsa-miR-96-5p.

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

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** where you can find, view and print the SDS for each QIAGEN kit and kit component.

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