

# RT<sup>2</sup> Profiler PCR Array (Rotor-Gene<sup>®</sup> Format)

## Rat DNA Repair

Cat. no. 330231 PARN-042ZR

For pathway expression analysis

Format	For use with the following real-time cyclers
RT <sup>2</sup> Profiler PCR Array, Format R	Rotor-Gene Q, other Rotor-Gene cyclers

### Description

The Rat DNA Repair RT<sup>2</sup> Profiler PCR Array profiles the expression of 84 key genes encoding the enzymes that repair damaged DNA. This array represents genes involved in the base-excision, nucleotide excision, mismatch, double-strand break, and other repair processes. Daily exposure to environmental agents (such as reactive oxygen species, methylating agents, UV light and other ionizing radiation) and even normal physiological processes (like replication and recombination) all damage DNA. Cells must repair DNA damage to prevent mutations from propagating and accumulating and to maintain genome integrity and stability. Inherited and acquired defects in DNA repair lead to accelerated aging and increased predisposition to cancer. Using real-time PCR, you can easily and reliably analyze the expression of a focused panel of genes involved in DNA Repair with this array.

For further details, consult the *RT<sup>2</sup> Profiler PCR Array Handbook*.

### Shipping and storage

RT<sup>2</sup> Profiler PCR Arrays in the Rotor-Gene format are shipped at ambient temperature, on dry ice, or blue ice packs depending on destination and accompanying products.

For long term storage, keep plates at –20°C.

**Note:** Ensure that you have the correct RT<sup>2</sup> Profiler PCR Array format for your real-time cycler (see table above).

**Note:** Open the package and store the products appropriately immediately on receipt.



## Array layout

The 96 real-time assays in the Rotor-Gene format are located in wells 1–96 of the Rotor-Disc™ (plate A1–A12=Rotor-Disc 1–12, plate B1–B12=Rotor-Disc 13–24, etc.). To maintain data analysis compatibility, wells 97–100 do not contain real-time assays but will contain master mix to account for weight balance.

## Gene table: RT<sup>2</sup> Profiler PCR Array

Position	UniGene	GenBank	Symbol	Description
A01	Rn.107582	NM_001126273	Alkbh2	AlkB, alkylation repair homolog 2 (E. coli)
A02	Rn.30490	NM_001014180	Alkbh3	AlkB, alkylation repair homolog 3 (E. coli)
A03	Rn.5949	NM_024148	Apex1	APEX nuclease (multifunctional DNA repair enzyme) 1
A04	Rn.214048	NM_001106821	Atm	Ataxia telangiectasia mutated homolog (human)
A05	Rn.42932	NM_021702	Atxn3	Ataxin 3
A06	Rn.211198	NM_001107526	Blm	Bloom syndrome, RecQ helicase-like
A07	Rn.48840	NM_012514	Brcal	Breast cancer 1
A08	Rn.103225	NM_031542	Brc2	Breast cancer 2
A09	Rn.23255	NM_052981	Ccnh	Cyclin H
A10	Rn.98896	XM_215467	Cdk7	Cyclin-dependent kinase 7
A11	Rn.41244	NM_001106201	Dclre1a	DNA cross-link repair 1A, PSO2 homolog (S. cerevisiae)
A12	Rn.39355	NM_001025687	Dclre1b	DNA cross-link repair 1B, PSO2 homolog (S. cerevisiae)
B01	Rn.8402	XM_002725785	Ddb1	Damage-specific DNA binding protein 1
B02	Rn.154614	XM_242065	Ddb2	Damage specific DNA binding protein 2
B03	Rn.45495	XM_001075521	Dmc1	DMC1 dosage suppressor of mck1 homolog, meiosis-specific homologous recombination (yeast)
B04	Rn.7320	NM_001106228	Ercc1	Excision repair cross-complementing rodent repair deficiency, complementation group 1
B05	Rn.74906	NM_001172809	Ercc2	Excision repair cross-complementing rodent repair deficiency, complementation group 2
B06	Rn.44012	NM_001031644	Ercc3	Excision repair cross-complementing rodent repair deficiency, complementation group 3
B07	Rn.195555	XM_222534	Ercc4	Excision repair cross-complementing rodent repair deficiency, complementation group 4
B08	Rn.208330	NM_001106910	Ercc5	Excision repair cross-complementing rodent repair deficiency, complementation group 5
B09	Rn.19370	NM_001107296	Ercc6	Excision repair cross-complementing rodent repair deficiency, complementation group 6
B10	Rn.107979	NM_001107650	Ercc8	Excision repair cross-complementing rodent repair deficiency, complementation group 8
B11	Rn.52638	NM_001107198	Exo1	Exonuclease 1
B12	Rn.16664	NM_053430	Fen1	Flap structure-specific endonuclease 1
C01	Rn.162850	NM_001106717	Gen1	Gen homolog 1, endonuclease (Drosophila)
C02	Rn.20467	NM_030855	Lig1	Ligase I, DNA, ATP-dependent
C03	Rn.203089	NM_001012011	Lig3	Ligase III, DNA, ATP-dependent
C04	Rn.219326	NM_001106095	Lig4	Ligase IV, DNA, ATP-dependent
C05	Rn.16755	XM_002726719	LOC100360342	RCG61559-like
C06	Rn.9836	NM_012861	Mgmt	O-6-methylguanine-DNA methyltransferase
C07	Rn.20391	NM_031053	Mlh1	MutL homolog 1 (E. coli)
C08	Rn.119254	NM_001108043	Mlh3	MutL homolog 3 (E. coli)
C09	Rn.11241	NM_012601	Mpg	N-methylpurine-DNA glycosylase
C10	Rn.209040	NM_022279	Mre11a	MRE11 meiotic recombination 11 homolog A (S. cerevisiae)
C11	Rn.3174	NM_031058	Msh2	MutS homolog 2 (E. coli)
C12	Rn.162551	XM_001065837	Msh3	MutS homolog 3 (E. coli)
D01	Rn.44043	NM_212536	Msh5	MutS homolog 5 (E. coli)
D02	Rn.137652	NM_001025645	Mus81	MUS81 endonuclease homolog (S. cerevisiae)
D03	Rn.44045	NM_133316	Mutyh	MutY homolog (E. coli)
D04	Rn.154781	NM_001025754	Neil1	Nei endonuclease VIII-like 1 (E. coli)
D05	Rn.106460	NM_001107270	Neil2	Nei like 2 (E. coli)
D06	Rn.35483	NM_001014217	Nhej1	Nonhomologous end-joining factor 1
D07	Rn.14632	NM_001105728	Nth1	Nth (endonuclease III)-like 1 (E.coli)
D08	Rn.22623	NM_030870	Ogg1	8-oxoguanine DNA glycosylase
D09	Rn.11327	NM_013063	Parp1	Poly (ADP-ribose) polymerase 1
D10	Rn.22730	NM_001106030	Parp2	Poly (ADP-ribose) polymerase 2
D11	Rn.79937	NM_001008328	Parp3	Poly (ADP-ribose) polymerase family, member 3
D12	Rn.47945	NM_001009535	Pms1	Postmeiotic segregation increased 1 (S. cerevisiae)

Position	UniGene	GenBank	Symbol	Description
E01	Rn.102072	NM_001105908	Pms2	PMS2 postmeiotic segregation increased 2 ( <i>S. cerevisiae</i> )
E02	Rn.45061	NM_001004259	Pnkp	Polynucleotide kinase 3'-phosphatase
E03	Rn.9346	NM_017141	Polb	Polymerase (DNA directed), beta
E04	Rn.162469	NM_001024750	Pold3	Polymerase (DNA-directed), delta 3, accessory subunit
E05	Rn.105454	NM_001014168	Poll	Polymerase (DNA directed), lambda
E06	Rn.24110	NM_001108327	Prkdc	Protein kinase, DNA activated, catalytic polypeptide
E07	Rn.22793	NM_001077673	Rad18	RAD18 homolog ( <i>S. cerevisiae</i> )
E08	Rn.3991	NM_001025701	Rad21	RAD21 homolog ( <i>S. pombe</i> )
E09	Rn.105419	NM_001013190	Rad23a	RAD23 homolog A ( <i>S. cerevisiae</i> )
E10	Rn.67042	NM_001025275	Rad23b	RAD23 homolog B ( <i>S. cerevisiae</i> )
E11	Rn.51136	NM_022246	Rad50	RAD50 homolog ( <i>S. cerevisiae</i> )
E12	Rn.214052	NM_001109204	Rad51	RAD51 homolog (RecA homolog, <i>E. coli</i> ) ( <i>S. cerevisiae</i> )
F01	Rn.160309	NM_001129777	Rad51c	Rad51 homolog c ( <i>S. cerevisiae</i> )
F02	Rn.206266	NM_001107029	Rad51l3	RAD51-like 3 ( <i>S. cerevisiae</i> )
F03	Rn.8154	NM_001106617	Rad52	RAD52 homolog ( <i>S. cerevisiae</i> )
F04	Rn.202025	NM_001134960	Rad54l	RAD54 like ( <i>S. cerevisiae</i> )
F05	Rn.216814	NM_001030042	Rad9b	RAD9 homolog B ( <i>S. cerevisiae</i> )
F06	Rn.103272	NM_053547	Rfc1	Replication factor C (activator 1) 1
F07	Rn.14841	NM_001047843	Rpa1	Replication protein A1
F08	Rn.94940	NM_001106584	Rpa3	Replication protein A3
F09	Rn.33275	NM_019349	Slk	STE20-like kinase (yeast)
F10	Rn.162974	NM_177934	Smug1	Single-strand-selective monofunctional uracil-DNA glycosylase 1
F11	Rn.98685	NM_053729	Tdg	Thymine-DNA glycosylase
F12	Rn.154546	XM_001077625	Top3a	Topoisomerase (DNA) III alpha
G01	Rn.23773	NM_001105861	Top3b	Topoisomerase (DNA) III beta
G02	Rn.98617	NM_001024989	Trex1	Three prime repair exonuclease 1
G03	Rn.63379	NM_001107580	Trex2	Three prime repair exonuclease 2
G04	Rn.104379	NM_001013124	Ung	Uracil-DNA glycosylase
G05	Rn.24921	NM_139109	Xab2	XPA binding protein 2
G06	Rn.22820	NM_001107874	Xpc	Xeroderma pigmentosum, complementation group C
G07	Rn.13754	NM_053435	Xrcc1	X-ray repair complementing defective repair in Chinese hamster cells 1
G08	Rn.8224	NM_001109215	Xrcc2	X-ray repair complementing defective repair in Chinese hamster cells 2
G09	Rn.40979	NM_001006999	Xrcc4	X-ray repair complementing defective repair in Chinese hamster cells 4
G10	Rn.52078	NM_177419	Xrcc5	X-ray repair complementing defective repair in Chinese hamster cells 5
G11	Rn.161996	NM_139080	Xrcc6	X-ray repair complementing defective repair in Chinese hamster cells 6
G12	Rn.61651	NM_001134466	Xrcc6bp1	XRCC6 binding protein 1
H01	Rn.94978	NM_031144	Actb	Actin, beta
H02	Rn.1868	NM_012512	B2m	Beta-2 microglobulin
H03	Rn.47	NM_012583	Hprt1	Hypoxanthine phosphoribosyltransferase 1
H04	Rn.107896	NM_017025	Ldha	Lactate dehydrogenase A
H05	Rn.973	NM_001007604	Rplp1	Ribosomal protein, large, P1
H06	N/A	U26919	RGDC	Rat Genomic DNA Contamination
H07	N/A	SA_00104	RTC	Reverse Transcription Control
H08	N/A	SA_00104	RTC	Reverse Transcription Control
H09	N/A	SA_00104	RTC	Reverse Transcription Control
H10	N/A	SA_00103	PPC	Positive PCR Control
H11	N/A	SA_00103	PPC	Positive PCR Control
H12	N/A	SA_00103	PPC	Positive PCR Control

## Related products

For optimal performance, RT<sup>2</sup> Profiler PCR Arrays should be used together with the RT<sup>2</sup> First Strand Kit for cDNA synthesis and RT<sup>2</sup> SYBR<sup>®</sup> Green qPCR Mastermixes for PCR.

Product	Contents	Cat. no.
RT <sup>2</sup> First Strand Kit (12)	Enzymes and reagents for cDNA synthesis	330401
RT <sup>2</sup> SYBR Green ROX <sup>™</sup> FAST Mastermix (2)*	For 2 x 96 assays in 96-well plates; suitable for use with the Rotor-Gene Q and other Rotor-Gene cyclers	330620

\* Larger kit sizes available; please inquire.

RT<sup>2</sup> Profiler PCR Array products are intended for molecular biology applications. These products are not intended for the diagnosis, prevention, or treatment of a disease.

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