

# QuantiNova® LNA® PCR Focus Panels (Rotor-Gene® Format)

## Human Autophagy

Cat. no. 249950 SBHS-084ZR

For study focus gene expression analysis

### Shipping and storage

QuantiNova LNA PCR Focus Panels are shipped at ambient temperature. Immediately upon receipt, they should be stored at 2–8°C for short term storage or at –30°C to –15°C for long time storage. Under these conditions, all components are stable for at least 12 months.

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

For optimal performance, QuantiNova LNA PCR Focus Panels should be used together with the QuantiNova Reverse Transcription Kit for cDNA synthesis and the QuantiNova SYBR® Green PCR Kit (Mastermix) for PCR.

### Panel layout (Rotor-Gene): QuantiNova LNA PCR Focus Panel

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. Refer to the QuantiNova LNA PCR System Handbook at [www.qiagen.com](http://www.qiagen.com) for further details.

	1	2	3	4	5	6	7	8	9	10	11	12
A	AKT1	AMBRA1	APP	ATG10	ATG12	ATG16L1	ATG16L2	ATG3	ATG4A	ATG4B	ATG4C	ATG4D
B	ATG5	ATG7	ATG9A	ATG9B	BAD	BAK1	BAX	BCL2	BCL2L1	BECN1	BID	BNIP3
C	CASP3	CASP8	CDKN1B	CDKN2A	CLN3	CTSB	CTSD	CTSS	CXCR4	DAPK1	DRAM1	DRAM2
D	EIF2AK3	EIF4G1	ESR1	FADD	FAS	GAA	GABARAP	GABARAPL1	GABARAPL2	HDAC1	HDAC6	HGS
E	HSP90AA1	HSPA8	HTT	IFNG	IGF1	INS	IRGM	LAMP1	MAP1LC3A	MAP1LC3B	MAPK14	MAPK8
F	MTOR	NFKB1	NPC1	PIK3C3	PIK3CG	PIK3R4	PRKAA1	PTEN	RAB24	RB1	RGS19	RPS6KB1
G	SNCA	SQSTM1	TGFB1	TGM2	TMEM74	TNF	TNFSF10	TP53	ULK1	ULK2	UVRAG	WIP1
H	ACTB	B2M	GAPDH	HPRT1	RPLP0	HGDC	QIC	QIC	QIC	PPC	PPC	PPC

## Gene table: QuantiNova LNA PCR Focus Panel

Position	Assay	Name	Symbol	Ensembl ID	Description
A01	SBH0095396	ENST00000555528.5	AKT1	ENSG00000142208	AKT serine/threonine kinase 1 Source HGNC Symbol Acc HGNC 391
A02	SBH0143006	ENST00000314845.7	AMBRA1	ENSG00000110497	autophagy and beclin 1 regulator 1 Source HGNC Symbol Acc HGNC 25990
A03	SBH1219749	ENST00000348990.9	APP	ENSG00000142192	amyloid beta precursor protein Source HGNC Symbol Acc HGNC 620
A04	SBH1219756	ENST00000513634.1	ATG10	ENSG00000152348	autophagy related 10 Source HGNC Symbol Acc HGNC 20315
A05	SBH0047443	ENST00000513322.5	ATG12	ENSG00000145782	autophagy related 12 Source HGNC Symbol Acc HGNC 588
A06	SBH0591150	ENST00000392020.8	ATG16L1	ENSG00000085978	autophagy related 16 like 1 Source HGNC Symbol Acc HGNC 21498
A07	SBH1219757	ENST00000541367.5	ATG16L2	ENSG00000168010	autophagy related 16 like 2 Source HGNC Symbol Acc HGNC 25464
A08	SBH0131023	ENST00000283290.9	ATG3	ENSG00000144848	autophagy related 3 Source HGNC Symbol Acc HGNC 20962
A09	SBH1219758	ENST00000372232.8	ATG4A	ENSG00000101844	autophagy related 4A cysteine peptidase Source HGNC Symbol Acc HGNC 16489
A10	SBH0366249	ENST00000400771.7	ATG4B	ENSG00000168397	autophagy related 4B cysteine peptidase Source HGNC Symbol Acc HGNC 20790
A11	SBH0561048	ENST00000371120.7	ATG4C	ENSG00000125703	autophagy related 4C cysteine peptidase Source HGNC Symbol Acc HGNC 16040
A12	SBH1219759	ENST00000309469.9	ATG4D	ENSG00000130734	autophagy related 4D cysteine peptidase Source HGNC Symbol Acc HGNC 20789
B01	SBH1219760	ENST00000636437.1	ATG5	ENSG00000057663	autophagy related 5 Source HGNC Symbol Acc HGNC 589
B02	SBH1219761	ENST00000354956.9	ATG7	ENSG00000197548	autophagy related 7 Source HGNC Symbol Acc HGNC 16935
B03	SBH0316528	ENST00000396761.6	ATG9A	ENSG00000198925	autophagy related 9A Source HGNC Symbol Acc HGNC 22408
B04	SBH1219762	ENST00000469530.4	ATG9B	ENSG00000181652	autophagy related 9B Source HGNC Symbol Acc HGNC 21899
B05	SBH0034205	ENST00000394532.7	BAD	ENSG00000002330	BCL2 associated agonist of cell death Source HGNC Symbol Acc HGNC 936
B06	SBH1219780	ENST00000374467.4	BAK1	ENSG00000030110	BCL2 antagonist/killer 1 Source HGNC Symbol Acc HGNC 949
B07	SBH1219783	ENST00000391871.4	BAX	ENSG00000087088	BCL2 associated X, apoptosis regulator Source HGNC Symbol Acc HGNC 959
B08	SBH1219786	ENST00000398117.1	BCL2	ENSG00000171791	BCL2, apoptosis regulator Source HGNC Symbol Acc HGNC 990
B09	SBH0216029	ENST00000450273.1	BCL2L1	ENSG00000171552	BCL2 like 1 Source HGNC Symbol Acc HGNC 992
B10	SBH0399911	ENST00000361523.8	BECN1	ENSG00000126581	beclin 1 Source HGNC Symbol Acc HGNC 1034
B11	SBH0641141	ENST00000622694.4	BID	ENSG00000015475	BH3 interacting domain death agonist Source HGNC Symbol Acc HGNC 1050
B12	SBH1219810	ENST00000540159.3	BNIP3	ENSG00000176171	BCL2 interacting protein 3 Source HGNC Symbol Acc HGNC 1084
C01	SBH1219824	ENST00000308394.9	CASP3	ENSG00000164305	caspase 3 Source HGNC Symbol Acc HGNC 1504
C02	SBH0075404	ENST00000358485.8	CASP8	ENSG00000064012	caspase 8 Source HGNC Symbol Acc HGNC 1509
C03	SBH1219879	ENST00000442489.1	CDKN1B	ENSG00000111276	cyclin dependent kinase inhibitor 1B Source HGNC Symbol Acc HGNC 1785
C04	SBH0349548	ENST00000304494.9	CDKN2A	ENSG00000147889	cyclin dependent kinase inhibitor 2A Source HGNC Symbol Acc HGNC 1787
C05	SBH0070674	ENST00000359984.12	CLN3	ENSG00000188603	CLN3, battenin Source HGNC Symbol Acc HGNC 2074
C06	SBH1219921	ENST00000534510.5	CTSB	ENSG00000164733	cathepsin B Source HGNC Symbol Acc HGNC 2527
C07	SBH1219922	ENST00000637815.1	CTSD	ENSG00000117984	cathepsin D Source HGNC Symbol Acc HGNC 2529
C08	SBH1219923	ENST00000448301.6	CTSS	ENSG00000163131	cathepsin S Source HGNC Symbol Acc HGNC 2545
C09	SBH0591410	ENST00000241393.3	CXCR4	ENSG00000121966	C-X-C motif chemokine receptor 4 Source HGNC Symbol Acc HGNC 2561
C10	SBH1219941	ENST00000408954.8	DAPK1	ENSG00000196730	death associated protein kinase 1 Source HGNC Symbol Acc HGNC 2674
		ENST00000258		ENSG000000	DNA damage regulated autophagy modulator 1 Source HGNC Symbol Acc

Position	Assay	Name	Symbol	Ensembl ID	Description
C11	SBH1219958	534.13	DRAM1	136048	HGNC 25645
C12	SBH0130726	ENST00000539 140.5	DRAM2	ENSG00000 156171	DNA damage regulated autophagy modulator 2 Source HGNC Symbol Acc HGNC 28769
D01	SBH1219972	ENST00000303 236.8	EIF2AK3	ENSG00000 172071	eukaryotic translation initiation factor 2 alpha kinase 3 Source HGNC Symbol Acc HGNC 3255
D02	SBH0065181	ENST00000382 330.7	EIF4G1	ENSG00000 114867	eukaryotic translation initiation factor 4 gamma 1 Source HGNC Symbol Acc HGNC 3296
D03	SBH0125383	ENST00000206 249.7	ESR1	ENSG00000 091831	estrogen receptor 1 Source HGNC Symbol Acc HGNC 3467
D04	SBH0294674	ENST00000301 838.4	FADD	ENSG00000 168040	Fas associated via death domain Source HGNC Symbol Acc HGNC 3573
D05	SBH1219994	ENST00000652 046.1	FAS	ENSG00000 026103	Fas cell surface death receptor Source HGNC Symbol Acc HGNC 11920
D06	SBH1220015	ENST00000302 262.8	GAA	ENSG00000 171298	glucosidase alpha, acid Source HGNC Symbol Acc HGNC 4065
D07	SBH1220016	ENST00000571 253.1	GABARAP	ENSG00000 170296	GABA type A receptor-associated protein Source HGNC Symbol Acc HGNC 4067
D08	SBH1220017	ENST00000421 801.6	GABARAPL 1	ENSG00000 139112	GABA type A receptor associated protein like 1 Source HGNC Symbol Acc HGNC 4068
D09	SBH1220018	ENST00000568 455.1	GABARAPL 2	ENSG00000 034713	GABA type A receptor associated protein like 2 Source HGNC Symbol Acc HGNC 13291
D10	SBH0527067	ENST00000472 928.5	HDAC1	ENSG00000 116478	histone deacetylase 1 Source HGNC Symbol Acc HGNC 4852
D11	SBH0370702	ENST00000334 136.10	HDAC6	ENSG00000 094631	histone deacetylase 6 Source HGNC Symbol Acc HGNC 14064
D12	SBH1220059	ENST00000329 138.9	HGS	ENSG00000 185359	hepatocyte growth factor-regulated tyrosine kinase substrate Source HGNC Symbol Acc HGNC 4897
E01	SBH0323386	ENST00000334 701.11	HSP90AA1	ENSG00000 080824	heat shock protein 90 alpha family class A member 1 Source HGNC Symbol Acc HGNC 5253
E02	SBH1220073	ENST00000534 319.5	HSPA8	ENSG00000 109971	heat shock protein family A (Hsp70) member 8 Source HGNC Symbol Acc HGNC 5241
E03	SBH0068070	ENST00000355 072.10	HTT	ENSG00000 197386	huntingtin Source HGNC Symbol Acc HGNC 4851
E04	SBH1220090	ENST00000229 135.4	IFNG	ENSG00000 111537	interferon gamma Source HGNC Symbol Acc HGNC 5438
E05	SBH1220091	ENST00000337 514.10	IGF1	ENSG00000 017427	insulin like growth factor 1 Source HGNC Symbol Acc HGNC 5464
E06	SBH0403664	ENST00000250 971.7	INS	ENSG00000 254647	insulin Source HGNC Symbol Acc HGNC 6081
E07	SBH1220127	ENST00000522 154.1	IRGM	ENSG00000 237693	immunity related GTPase M Source HGNC Symbol Acc HGNC 29597
E08	SBH1220165	ENST00000332 556.5	LAMP1	ENSG00000 185896	lysosomal associated membrane protein 1 Source HGNC Symbol Acc HGNC 6499
E09	SBH0164958	ENST00000397 709.1	MAP1LC3A	ENSG00000 101460	microtubule associated protein 1 light chain 3 alpha Source HGNC Symbol Acc HGNC 6838
E10	SBH0554781	ENST00000268 607.9	MAP1LC3B	ENSG00000 140941	microtubule associated protein 1 light chain 3 beta Source HGNC Symbol Acc HGNC 13352
E11	SBH0102441	ENST00000229 795.7	MAPK14	ENSG00000 112062	mitogen-activated protein kinase 14 Source HGNC Symbol Acc HGNC 6876
E12	SBH0294318	ENST00000395 611.7	MAPK8	ENSG00000 107643	mitogen-activated protein kinase 8 Source HGNC Symbol Acc HGNC 6881
F01	SBH0492696	ENST00000361 445.8	MTOR	ENSG00000 198793	mechanistic target of rapamycin kinase Source HGNC Symbol Acc HGNC 3942
F02	SBH1220264	ENST00000651 197.1	NFKB1	ENSG00000 109320	nuclear factor kappa B subunit 1 Source HGNC Symbol Acc HGNC 7794
F03	SBH1220276	ENST00000269 228.10	NPC1	ENSG00000 141458	NPC intracellular cholesterol transporter 1 Source HGNC Symbol Acc HGNC 7897
F04	SBH1220312	ENST00000639 914.1	PIK3C3	ENSG00000 078142	phosphatidylinositol 3-kinase catalytic subunit type 3 Source HGNC Symbol Acc HGNC 8974
F05	SBH1220313	ENST00000496 166.6	PIK3CG	ENSG00000 105851	phosphatidylinositol-4,5-bisphosphate 3-kinase catalytic subunit gamma Source HGNC Symbol Acc HGNC 8978
F06	SBH1220314	ENST00000356 763.8	PIK3R4	ENSG00000 196455	phosphoinositide-3-kinase regulatory subunit 4 Source HGNC Symbol Acc HGNC 8982
F07	SBH1220332	ENST00000397 128.6	PRKAA1	ENSG00000 132356	protein kinase AMP-activated catalytic subunit alpha 1 Source HGNC Symbol Acc HGNC 9376
F08	SBH1225378	ENST00000371 953.8	PTEN	ENSG00000 171862	phosphatase and tensin homolog Source HGNC Symbol Acc HGNC 9588
F09	SBH0391354	ENST00000393 611.6	RAB24	ENSG00000 169228	RAB24, member RAS oncogene family Source HGNC Symbol Acc HGNC 9765
F10	SBH0093533	ENST00000267 163.5	RB1	ENSG00000 139687	RB transcriptional corepressor 1 Source HGNC Symbol Acc HGNC 9884

Position	Assay	Name	Symbol	Ensembl ID	Description
F11	SBH1220365	ENST00000332298.9	RGS19	ENSG00000171700	regulator of G protein signaling 19 Source HGNC Symbol Acc HGNC 13735
F12	SBH1220379	ENST00000406116.7	RPS6KB1	ENSG00000108443	ribosomal protein S6 kinase B1 Source HGNC Symbol Acc HGNC 10436
G01	SBH0118819	ENST00000394991.7	SNCA	ENSG00000145335	synuclein alpha Source HGNC Symbol Acc HGNC 11138
G02	SBH0567619	ENST00000466342.1	SQSTM1	ENSG00000161011	sequestosome 1 Source HGNC Symbol Acc HGNC 11280
G03	SBH1220443	ENST00000598758.5	TGFB1	ENSG00000105329	transforming growth factor beta 1 Source NCBI gene Acc 7040
G04	SBH1220449	ENST00000373403.7	TGM2	ENSG00000198959	transglutaminase 2 Source HGNC Symbol Acc HGNC 11778
G05	SBH1220469	ENST00000297459.4	TMEM74	ENSG00000164841	transmembrane protein 74 Source HGNC Symbol Acc HGNC 26409
G06	SBH1220471	ENST00000449264.3	TNF	ENSG00000232810	tumor necrosis factor Source HGNC Symbol Acc HGNC 11892
G07	SBH1220477	ENST00000241261.7	TNFSF10	ENSG00000121858	TNF superfamily member 10 Source HGNC Symbol Acc HGNC 11925
G08	SBH1220486	ENST00000445888.6	TP53	ENSG00000141510	tumor protein p53 Source HGNC Symbol Acc HGNC 11998
G09	SBH1220504	ENST00000321867.6	ULK1	ENSG00000177169	unc-51 like autophagy activating kinase 1 Source HGNC Symbol Acc HGNC 12558
G10	SBH1220505	ENST00000395544.9	ULK2	ENSG00000083290	unc-51 like autophagy activating kinase 2 Source HGNC Symbol Acc HGNC 13480
G11	SBH1220513	ENST00000532130.1	UVRAG	ENSG00000198382	UV radiation resistance associated Source HGNC Symbol Acc HGNC 12640
G12	SBH0518264	ENST00000586815.1	WIP1	ENSG00000070540	WD repeat domain, phosphoinositide interacting 1 Source HGNC Symbol Acc HGNC 25471
H01	SBH1220543	ENST00000646664.1	ACTB	ENSG00000075624	actin beta Source HGNC Symbol Acc HGNC 132
H02	SBH1220550	ENST00000558401.6	B2M	ENSG00000166710	beta-2-microglobulin Source HGNC Symbol Acc HGNC 914
H03	SBH1220545	ENST00000396861.5	GAPDH	ENSG00000111640	glyceraldehyde-3-phosphate dehydrogenase Source HGNC Symbol Acc HGNC 4141
H04	SBH1220546	ENST00000298556.8	HPRT1	ENSG00000165704	hypoxanthine phosphoribosyltransferase 1 Source HGNC Symbol Acc HGNC 5157
H05	SBH1220553	ENST00000546989.5	RPLP0	ENSG00000089157	ribosomal protein lateral stalk subunit P0 Source HGNC Symbol Acc HGNC 10371
H06	SBH1218553	Sybr_HGDC	HGDC	Sybr_HGDC	Human Genomic DNA Contamination
H07	SBH1218551	Sybr_QIC	QIC	Sybr_QIC	QuantiNova Internal Control
H08	SBH1218551	Sybr_QIC	QIC	Sybr_QIC	QuantiNova Internal Control
H09	SBH1218551	Sybr_QIC	QIC	Sybr_QIC	QuantiNova Internal Control
H10	SBH1218550	Sybr_PPC	PPC	Sybr_PPC	Positive PCR Control
H11	SBH1218550	Sybr_PPC	PPC	Sybr_PPC	Positive PCR Control
H12	SBH1218550	Sybr_PPC	PPC	Sybr_PPC	Positive PCR Control



## Related products

Product	Contents	Cat. no.
QuantiNova LNA PCR QC Panel	These panels are designed to assess the quality of RNA samples before characterization using QuantiNova LNA PCR Focus Panels; available in 96-well, 384-well, and Rotor-Disc 100 formats	249940
QuantiNova Reverse Transcription Kit (10)*	For 10 x 20 $\mu$ l reactions: 20 $\mu$ l 8x gDNA Removal Mix, 10 $\mu$ l Reverse Transcription Enzyme, 40 $\mu$ l Reverse Transcription Mix (containing RT primers), 20 $\mu$ l Internal Control RNA, 1.9 ml RNase-Free Water	205410
QuantiNova SYBR Green RT-PCR Kit (100)*	For 100 x 20 $\mu$ l reactions: 1 ml QuantiNova SYBR Green RT-PCR Master Mix, 20 $\mu$ l QuantiNova SYBR Green RT Mix, 20 $\mu$ l Internal Control RNA, 500 $\mu$ l Yellow Template Dilution Buffer, 250 $\mu$ l ROX Reference Dye, 1.9 $\mu$ l RNase-Free Water	208152
QuantiNova SYBR Green PCR Kit (100)*	For 100 x 20 $\mu$ l reactions: 1 ml 2x QuantiNova SYBR Green PCR Master Mix, 500 $\mu$ l QuantiNova Yellow Template Dilution Buffer, 250 $\mu$ l QN ROX Reference Dye, 1.9 ml Water	208052

\*Larger kit sizes available.

The QuantiNova LNA PCR Focus Panels are intended for molecular biology applications. These products are not intended for the diagnosis, prevention or treatment of a disease.

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