Invitrogen
life technologies

Mouse/Rat ATPSase—Certified LUX™ Primer Set

Cat. Nos.	Size:
108M-01 (FAM labeled)	**100 µl × 2**
108M-02 (JOE labeled)	**100 µl × 2**
Conc: 10 µM	**Store at -20°C (non-frost-free freezer)**

LUX™ Primers

LUX™ primers are a sensitive and efficient method for performing real-time (quantitative) PCR and RT-PCR. Each LUX™ primer pair includes a fluorogenic primer and a corresponding unlabeled primer, which have been designed to amplify and detect a specific gene of interest. The hairpin secondary structure of the fluorogenic primer quenches the attached fluorophore (FAM or JOE). When this primer is incorporated into double-stranded PCR product, the fluorophore is dequenched and the signal increases by up to 10-fold. LUX™ primers combine high specificity with multiplexing and melting curve capability, have a broad dynamic range of 7–8 orders, and are compatible with most real-time PCR instruments.

Certified LUX™ Primer Sets for Housekeeping Genes

Certified LUX™ Primer Sets for Housekeeping Genes are predesigned primer sets for genes that are commonly used as internal controls for normalizing real-time RT-PCR experiments. These primer sets have been optimized and functionally validated to provide accurate, reproducible results using standard LUX™ protocols, and are supplied in a ready-to-use format.

Certified LUX™ Primer Sets contain a vial of labeled primer and a vial of unlabeled primer, each at 10 µM concentration. Volumes are sufficient for 100 50-µl reactions or 250 20-µl reactions. For real-time PCR and RT-PCR protocols using LUX™ primers, visit the LUX™ Web site at www.invitrogen.com/lux.

Primer	Direction	Amount	Conc
Labeled (FAM or JOE)	Forward	100 µl	10 µM
Unlabeled	Reverse	100 µl	10 µM

This product is distributed for laboratory research only. CAUTION: Not for diagnostic use. The safety and efficacy of this product in diagnostic or other clinical uses has not been established.

Shipping and Storage

Primers are supplied in TE buffer and should be stored at -20°C in the dark in a non-frost-free freezer.

ATPSase

The F1 beta subunit of mitochondrial ATP synthase (ATPSase) is encoded by a nuclear gene and assembled with the other subunits encoded by both mitochondrial and nuclear genes. The enzyme catalyzes ATP formation, using the energy of proton flux through the inner membrane during oxidative phosphorylation.

Database information for ATPSase is provided in the table below:

Gene	Species	GenBank® Accession #	Entrez® Ref Seq #	OMIM™ #
ATPSase	*Mus musculus**	AF030559	NM_016774	102910

*Primer set has been validated to work with both mouse and rat genes.

OMIM™ database: http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=OMIM

Entrez® database: http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=Nucleotide

Primer Specifications

The Mouse/Rat ATPSase Certified LUX™ Primer Set amplifies a region in the third quarter of the ATPSase coding sequence.

Label	CDS Location	Amplicon Melting Temp**	PCR Product Size Range
JOE or FAM	n/a	T_m = 80ºC	50–100 bp

**Note that this is the T_m of the amplicon, not the primers. T_m is approximate and dependent on experimental conditions.

Dye Information

Each fluorogenic LUX™ primer is labeled with one of two reporter dyes:

Dye	Wavelength	
	Excitation	Emission
FAM (6-carboxy-fluorescein)	490 nm	520 nm
JOE (6-carboxy-4', 5'-dichloro-2', 7'-dimethoxy-fluorescein)	520 nm	550 nm

Protocols

Primers are supplied at 10 µM concentration. Use 1 µl of each primer (labeled and unlabeled) per 50 µl reaction, or 0.4 µl per 20 µl reaction.

Refer to the LUX™ Primers manual for detailed protocols for performing real-time PCR and RT-PCR. The manual can be downloaded at www.invitrogen.com/lux.

Note: We strongly recommend DNase I digestion of RNA samples prior to amplification with LUX™ gene-specific primers. See the LUX™ Primers manual for more information.

Product Qualification

Certified LUX™ Primer Sets are designed to discriminate between messages and known pseudogenes/different isoforms. Mouse/rat primer sets have been validated to work with both mouse and rat genes. Performance is functionally validated using a dilution series in a two-step real-time RT-PCR with mouse NIH 3T3 RNA. The amplification efficiency based on the slope of the resulting standard curve is greater than 90%.

Limited Use Label License No. 114: LUX™ Fluorogenic Primer

The purchase of this product conveys to the buyer the non-transferable right to use the purchased amount of the product and components of the product in research conducted by the buyer (whether the buyer is an academic or for-profit entity). The buyer cannot sell or otherwise transfer (a) this product (b) its components or (c) materials made using this product or its components to a third party or otherwise use this product or its components or materials made using this product or its components for commercial purposes. The buyer may transfer information or materials made through the use of this product to a scientific collaborator, provided that such transfer is not for the commercial purposes of the buyer, and that such collaborator agrees in writing (a) to not transfer such materials to any third party, and (b) to use such transferred materials and/or information solely for research and not for commercial purposes. Commercial purposes means any activity by a party for consideration and may include, but is not limited to: (1) use of the product or its components in manufacturing; (2) use of the product or its components to provide a service, information, or data; (3) use of the product or its components for therapeutic, diagnostic or prophylactic purposes; or (4) resale of the product or its components, whether or not such product or its components are resold for use in research. Invitrogen Corporation will not assert a claim against the buyer of infringement of patents owned by Invitrogen based upon the manufacture, use or sale of a therapeutic, clinical diagnostic, vaccine or prophylactic product developed in research by the buyer in which this product or its components was employed, provided that neither this product nor any of its components was used in the manufacture of such product. If the purchaser is not willing to accept the limitations of this limited use statement, Invitrogen is willing to accept return of the products with a full refund. For information on purchasing a license to this product for purposes other than research, contact Licensing Department, 1600 Faraday Avenue, Carlsbad, California 92008. Phone (760) 603-7200. Fax (760) 602-6500.

Limited Use Label License No. 4: Products for PCR which do not include any rights to perform PCR

This product is optimized for use in the Polymerase Chain Reaction (PCR) covered by patents owned by Roche Molecular Systems, Inc. and F. Hoffmann-La Roche, Ltd. ("Roche"). No license under these patents to use the PCR process is conveyed expressly or by implication to the purchaser by the purchase of this product. A license to use the PCR process for certain research and development activities accompanies the purchase of certain reagents from licensed suppliers such as Invitrogen, when used in conjunction with an Authorized Thermal Cycler, or is available from Applied Biosystems. Further information on purchasing licenses to practice the PCR process may be obtained by contacting the Director of Licensing at Applied Biosystems, 850 Lincoln Centre Drive, Foster City, California 94404 or at Roche Molecular Systems, Inc., 1145 Atlantic Avenue, Alameda, California 94501.