

## Product datasheet for **MG225718**

### Sirt2 (NM\_001122766) Mouse Tagged ORF Clone

#### Product data:

Product Type:	Expression Plasmids
Product Name:	Sirt2 (NM_001122766) Mouse Tagged ORF Clone
Tag:	TurboGFP
Symbol:	Sirt2
Synonyms:	5730427M03Rik; Sir2l; SIR2L2
Mammalian Cell Selection:	Neomycin
Vector:	pCMV6-AC-GFP (PS100010)
E. coli Selection:	Ampicillin (100 ug/mL)
ORF Nucleotide Sequence:	>MG225718 representing NM_001122766 Red=Cloning site Blue=ORF Green=Tags(s)

TTTTGTAATACGACTCACTATAGGGCGGCCGGAATTCGTCGACTGGATCCGGTACCGAGGAGATCTGCC  
GCC**CGATCGCC**

ATGGCCGAGCCGGACCGCCGAAGGTCATCTGTTTGGTGGGAGCCGGAATCTCCACGTCCGCGGTATCC  
CTGACTCCGCTCCCGTCCACTGGCCTCTATGCAAACCTGGAGAAGTACCACCTTCCTTACCCAGAGGC  
CATCTTTGAGATCAGCTACTTCAAGAAACATCCGGAACCTTCTTTGCCCTTGCCAAGGAGCTCTATCCC  
GGGCAGTTC AAGCAACCATCTGCCACTACTTCATCCGCCTGCTGAAGGAGAAGGGGCTGCTGCTGCGCT  
GCTACACGCAGAACATAGACACGCTGGAACGAGTGGCGGGCTGGAGCCCAGGACCTGGTGGAGGCCCA  
CGGCACCTTCTACACATCACACTGTGTCAACACCTCCTGCAGAAAAGAATACACGATGGGCTGGATGAAA  
GAGAAGATCTTCTCAGAAGCAACTCCCAGGTGTGAGCAGTGTGAGTGTGGTAAAGCCTGATATCGTGT  
TTTTCGGTGAGAACCTTCCATCGCGCTTCTTCTCCTGCATGCAGTCAGACTTCTCCAAGGTGGACCTCCT  
CATCATCATGGGCACCTCCCTGCAGGTGCAGCCCTTCGCCTCCCTCATCAGCAAGGCACCACTAGCCACC  
CCACGGCTGCTCATTAAACAAGGAAAAGACAGGCCAGACGGACCCCTTCTGGGCATGATGATGGGCTGG  
GAGGTGGCATGGATTTTGACTCCAAGAAGGCTTACAGGGACGTGGCTGGCTGGGTGACTGTGATCAAGG  
CTGCCTGGCTCTCGCTGACCTCCTCGGATGGAAGAAGGAACTGGAAGACCTTGTCCGGAGGGAGCATGCC  
AACATAGATGCCAGTCAGGGTACAGGCCCAACCCAGCAGTACCCTCCCTGGAAGTCCCAC  
CGCTGCCAAGGAGCGCCAGGACCAAGAGAAGAGGAACAGCAG

**ACGCGT**ACGCGGCCGCTCGAG - GFP Tag - GTTTAA



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Protein Sequence: >MG225718 representing NM\_001122766  
 Red=Cloning site Green=Tags(s)

MAEPDRRKVICLVGAGISTSAGIPDFRSPSTGLYANLEKYHLPYPEAIFEISYFKKHPEPFFALAKELY  
 GQFKPTICHYFIRLLKEKGLLLRCYTQNIIDLERVAGLEPQDLVEAHGTFYTSHCVNTSCRKEYTMGWMK  
 EKIFSEATPRCEQCQSVVKPDI VFFGENLPSRFFSCMQSDFSKVDLLIIMGTSLQVQPFASLISKAPLAT  
 PRLLINKEKTGQDTPFLGMMMLGGGMDFD SKKAYRDVAWLGDCCDQGLALADLLGWKKELEDLVRREHA  
 NIDAQSGSQAPNPSTTISP GKSPPPAKEAARTKEKEEQQ

TRTRPLE - GFP Tag - V

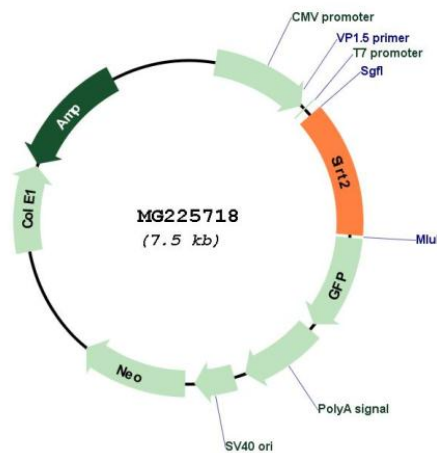
Restriction Sites: SgfI-MluI

Cloning Scheme:

Cloning sites used for ORF Shuttling:



Plasmid Map:



ACCN: NM\_001122766

ORF Size: 957 bp

<b>OTI Disclaimer:</b>	The molecular sequence of this clone aligns with the gene accession number as a point of reference only. However, individual transcript sequences of the same gene can differ through naturally occurring variations (e.g. polymorphisms), each with its own valid existence. This clone is substantially in agreement with the reference, but a complete review of all prevailing variants is recommended prior to use. <a href="#">More info</a>
<b>OTI Annotation:</b>	This clone was engineered to express the complete ORF with an expression tag. Expression varies depending on the nature of the gene.
<b>Components:</b>	The ORF clone is ion-exchange column purified and shipped in a 2D barcoded Matrix tube containing 10ug of transfection-ready, dried plasmid DNA (reconstitute with 100 ul of water).
<b>Reconstitution Method:</b>	<ol style="list-style-type: none"><li>1. Centrifuge at 5,000xg for 5min.</li><li>2. Carefully open the tube and add 100ul of sterile water to dissolve the DNA.</li><li>3. Close the tube and incubate for 10 minutes at room temperature.</li><li>4. Briefly vortex the tube and then do a quick spin (less than 5000xg) to concentrate the liquid at the bottom.</li><li>5. Store the suspended plasmid at -20°C. The DNA is stable for at least one year from date of shipping when stored at -20°C.</li></ol>
<b>RefSeq:</b>	<a href="#">NM_001122766.1</a> , <a href="#">NP_001116238.1</a>
<b>RefSeq Size:</b>	1653 bp
<b>RefSeq ORF:</b>	960 bp
<b>Locus ID:</b>	64383
<b>UniProt ID:</b>	<a href="#">Q8VDQ8</a>
<b>Cytogenetics:</b>	7 B1
<b>Gene Summary:</b>	NAD-dependent protein deacetylase, which deacetylates internal lysines on histone and alpha-tubulin as well as many other proteins such as key transcription factors (PubMed:17521387, PubMed:17681146, PubMed:17574768, PubMed:19037106, PubMed:22014574, PubMed:21791548, PubMed:21841822, PubMed:24334550). Participates in the modulation of multiple and diverse biological processes such as cell cycle control, genomic integrity, microtubule dynamics, cell differentiation, metabolic networks, and autophagy. Plays a major role in the control of cell cycle progression and genomic stability. Functions in the antephasal checkpoint preventing precocious mitotic entry in response to microtubule stress agents, and hence allowing proper inheritance of chromosomes. Positively regulates the anaphase promoting complex/cyclosome (APC/C) ubiquitin ligase complex activity by deacetylating CDC20 and FZR1, then allowing progression through mitosis. Associates both with chromatin at transcriptional start sites (TSSs) and enhancers of active genes. Plays a role in cell cycle and chromatin compaction through epigenetic modulation of the regulation of histone H4 'Lys-20' methylation (H4K20me1) during early mitosis. Specifically deacetylates histone H4 at 'Lys-16' (H4K16ac) between the G2/M transition and metaphase enabling H4K20me1 deposition by KMT5A leading to ulterior levels of H4K20me2 and H4K20me3 deposition throughout cell cycle, and mitotic S-phase progression. Deacetylates

KMT5A modulating KMT5A chromatin localization during the mitotic stress response. Deacetylates also histone H3 at 'Lys-57' (H3K56ac) during the mitotic G2/M transition. During oocyte meiosis progression, may deacetylate histone H4 at 'Lys-16' (H4K16ac) and alpha-tubulin, regulating spindle assembly and chromosome alignment by influencing microtubule dynamics and kinetochore function. Deacetylates histone H4 at 'Lys-16' (H4K16ac) at the VEGFA promoter and thereby contributes to regulate expression of VEGFA, a key regulator of angiogenesis. Deacetylates alpha-tubulin at 'Lys-40' and hence controls neuronal motility, oligodendroglial cell arbor projection processes and proliferation of non-neuronal cells. Phosphorylation at Ser-368 by a G1/S-specific cyclin E-CDK2 complex inactivates SIRT2-mediated alpha-tubulin deacetylation, negatively regulating cell adhesion, cell migration and neurite outgrowth during neuronal differentiation. Deacetylates PARD3 and participates in the regulation of Schwann cell peripheral myelination formation during early postnatal development and during postinjury remyelination. Involved in several cellular metabolic pathways. Plays a role in the regulation of blood glucose homeostasis by deacetylating and stabilizing phosphoenolpyruvate carboxykinase PCK1 activity in response to low nutrient availability. Acts as a key regulator in the pentose phosphate pathway (PPP) by deacetylating and activating the glucose-6-phosphate G6PD enzyme, and therefore, stimulates the production of cytosolic NADPH to counteract oxidative damage. Maintains energy homeostasis in response to nutrient deprivation as well as energy expenditure by inhibiting adipogenesis and promoting lipolysis. Attenuates adipocyte differentiation by deacetylating and promoting FOXO1 interaction to PPARG and subsequent repression of PPARG-dependent transcriptional activity. Plays a role in the regulation of lysosome-mediated degradation of protein aggregates by autophagy in neuronal cells. Deacetylates FOXO1 in response to oxidative stress or serum deprivation, thereby negatively regulating FOXO1-mediated autophagy (By similarity). Deacetylates a broad range of transcription factors and co-regulators regulating target gene expression. Deacetylates transcriptional factor FOXO3 stimulating the ubiquitin ligase SCF(SKP2)-mediated FOXO3 ubiquitination and degradation (By similarity). Deacetylates HIF1A and therefore promotes HIF1A degradation and inhibition of HIF1A transcriptional activity in tumor cells in response to hypoxia. Deacetylates RELA in t