

## Product datasheet for **SR423527**

### Mtor Mouse siRNA Oligo Duplex (Locus ID 56717)

#### Product data:

Product Type:	siRNA Oligo Duplexes
Purity:	HPLC purified
Quality Control:	Tested by ESI-MS
Sequences:	Available with shipment
Stability:	One year from date of shipment when stored at -20°C.
# of transfections:	Approximately 330 transfections/2nmol in 24-well plate under optimized conditions (final conc. 10 nM).
Note:	Single siRNA duplex (10nmol) can be ordered.
RefSeq:	<a href="#">NM_020009</a>
UniProt ID:	<a href="#">Q9JLN9</a>
Synonyms:	2610315D21Rik; AI327068; flat; FRAP; Frap1; FRAP2; RAFT1; RAPT1
Components:	Mtor (Mouse) - 3 unique 27mer siRNA duplexes - 2 nmol each (Locus ID 56717) Included - SR30004, Trilencer-27 Universal Scrambled Negative Control siRNA Duplex - 2 nmol Included - SR30005, RNase free siRNA Duplex Resuspension Buffer - 2 ml
Summary:	Serine/threonine protein kinase which is a central regulator of cellular metabolism, growth and survival in response to hormones, growth factors, nutrients, energy and stress signals (PubMed:15467718, PubMed:15545625, PubMed:16221682, PubMed:16915281, PubMed:16962653, PubMed:18046414, PubMed:19440205, PubMed:21659604). MTOR directly or indirectly regulates the phosphorylation of at least 800 proteins (PubMed:15467718, PubMed:15545625, PubMed:16221682, PubMed:16915281, PubMed:16962653, PubMed:18046414, PubMed:19440205, PubMed:21659604). Functions as part of 2 structurally and functionally distinct signaling complexes mTORC1 and mTORC2 (mTOR complex 1 and 2) (PubMed:15467718, PubMed:16962653, PubMed:21659604). Activated mTORC1 up-regulates protein synthesis by phosphorylating key regulators of mRNA translation and ribosome synthesis (By similarity). This includes phosphorylation of EIF4EBP1 and release of its inhibition toward the elongation initiation factor 4E (eIF4E) (By similarity). Moreover, phosphorylates and activates RPS6KB1 and RPS6KB2 that promote protein synthesis by modulating the activity of their downstream targets including ribosomal protein S6, eukaryotic translation initiation factor EIF4B, and the inhibitor of translation initiation PDCD4 (By similarity). Stimulates the pyrimidine biosynthesis pathway, both by acute



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regulation through RPS6KB1-mediated phosphorylation of the biosynthetic enzyme CAD, and delayed regulation, through transcriptional enhancement of the pentose phosphate pathway which produces 5-phosphoribosyl-1-pyrophosphate (PRPP), an allosteric activator of CAD at a later step in synthesis, this function is dependent on the mTORC1 complex (By similarity). Regulates ribosome synthesis by activating RNA polymerase III-dependent transcription through phosphorylation and inhibition of MAF1 an RNA polymerase III-repressor (By similarity). In parallel to protein synthesis, also regulates lipid synthesis through SREBF1/SREBP1 and LPIN1 (PubMed:11792863). To maintain energy homeostasis mTORC1 may also regulate mitochondrial biogenesis through regulation of PPARGC1A (PubMed:18046414). mTORC1 also negatively regulates autophagy through phosphorylation of ULK1 (PubMed:21258367). Under nutrient sufficiency, phosphorylates ULK1 at 'Ser-758', disrupting the interaction with AMPK and preventing activation of ULK1 (PubMed:21258367). Also prevents autophagy through phosphorylation of the autophagy inhibitor DAP (By similarity). Also prevents autophagy by phosphorylating RUBCNL/Pacer under nutrient-rich conditions (By similarity). mTORC1 exerts a feedback control on upstream growth factor signaling that includes phosphorylation and activation of GRB10 a INSR-dependent signaling suppressor (PubMed:21659604). Among other potential targets mTORC1 may phosphorylate CLIP1 and regulate microtubules (By similarity). As part of the mTORC2 complex MTOR may regulate other cellular processes including survival and organization of the cytoskeleton (By similarity). Plays a critical role in the phosphorylation at 'Ser-473' of AKT1, a pro-survival effector of phosphoinositide 3-kinase, facilitating its activation by PDK1 (By similarity). mTORC2 may regulate the actin cytoskeleton, through phosphorylation of PRKCA, PXN and activation of the Rho-type guanine nucleotide exchange factors RHOA and RAC1A or RAC1B (By similarity). mTORC2 also regulates the phosphorylation of SGK1 at 'Ser-422' (By similarity). Regulates osteoclastogenesis by adjusting the expression of CEBPB isoforms (PubMed:19440205). Plays an important regulatory role in the circadian clock function; regulates period length and rhythm amplitude of the suprachiasmatic nucleus (SCN) and liver clocks (PubMed:29750810).[UniProtKB/Swiss-Prot Function]

**Performance  
Guaranteed:**

OriGene guarantees that at least two of the three Dicer-Substrate duplexes in the kit will provide at least 70% or more knockdown of the target mRNA when used at 10 nM concentration by quantitative RT-PCR when the TYE-563 fluorescent transfection control duplex (cat# SR30002) indicates that >90% of the cells have been transfected and the HPRT positive control (cat# SR30003) provides 90% knockdown efficiency.

For non-conforming siRNA, requests for replacement product must be made within ninety (90) days from the date of delivery of the siRNA kit. To arrange for a free replacement with newly designed duplexes, please contact Technical Services at [techsupport@origene.com](mailto:techsupport@origene.com). Please provide your data indicating the transfection efficiency and measurement of gene expression knockdown compared to the scrambled siRNA control (quantitative RT-PCR data required).