

Product datasheet for RC213332

Hamartin (TSC1) (NM_000368) Human Tagged ORF Clone

Product data:

Product Type:	Expression Plasmids
Product Name:	Hamartin (TSC1) (NM_000368) Human Tagged ORF Clone
Tag:	Myc-DDK
Symbol:	Hamartin
Synonyms:	LAM; TSC
Mammalian Cell Selection:	Neomycin
Vector:	pCMV6-Entry (PS100001)
E. coli Selection:	Kanamycin (25 ug/mL)
ORF Nucleotide Sequence:	>RC213332 representing NM_000368. Blue=ORF Red=Cloning site Green=Tag(s)

```
GCTCGTTTGTAGTGAACCGTCAGAATTTTGTAAACGACTCACTATAGGGCGGCCGGGAATTCGTCGACTG
GATCCGGTACCGAGGAGATCTGCCGCCGCGATCGCC
ATGGCCCAACAAGCAAATGTCGGGGAGCTTCTTGCCATGCTGGACTCCCCATGCTGGGTGTGCGGGAC
GACGTGACAGCTGTCTTTAAAGAGAACCTCAATTCTGACCGTGGCCCTATGCTTGTAAACACCTTGGTG
GATTATTACCTGGAAACCAGCTCTCAGCCGGCATTGCACATCCTGACCACCTGCAAGAGCCACATGAC
AAGCACCTCTGGACAGGATTAACGAATATGTGGGCAAAGCCGCACTCGTTTATCCATCCTCTCGTTA
CTGGGTGATGTCATAAGACTGCAGCCATCTTGAAGCATAAGCTCTCTCAAGCACCTCTTTGCCTTCT
TTACTAAAATGTCTCAAGATGGACTGACGCTGTTGTCCTCACAAACAGGCGTCTTGGTGTGATAACC
ATGCTACCAATGATTCCACAGTCTGGGAAACAGCATCTTCTTGATTTCTTTGACATTTTGGCCGCTCG
TCATCATGGTGCCTGAAGAAACCAGGCCAGTGGCGGAAGTCTATCTCGTCCATCTCCATGCCAGTGTG
TACGCACTCTTTCATCGCCTTTATGGAATGTACCTTGCAACTTCGTCCTCTTTTTCGTTCTCATTAC
AGTATGAAAGAAAACCTGGAGACTTTTGAAGAAGTGGTCAAGCCAATGATGGAGCATGTGCGAATTCAT
CCGGAATTAGTGACTGGATCCAAGGACCATGAACTGGACCCTCGAAGGTGGAAGAGATTAGAAAACAT
GATGTTGTGATCGAGTGTGCCAAAATCTCTCTGGATCCCACAGAAGCCTCATATGAAGATGGCTATTCT
GTGTCTCACAAAATCTCAGCCCGCTTTCCTCATCGTTCAGCCGATGTACCACCAGCCCTATGCTGAC
ACACAGAATAGCTATGGGTGTGCTACTTCTACCCCTTACTCCAGTCTCGGCTGATGTTGTTAAATATG
CCAGGGCAGCTACCTCAGACTCTGAGTTCCCATCGACACGGCTGATAACTGAACCACCACAAGCTACT
CTTTGGAGCCCATCTATGGTTTGTGGTATGACCACTCCTCCAACTTCTCCTGGAAATGTCCCACCTGAT
CTGTACACCCCTTACAGTAAAGTCTTTGGTACAACCTGCAGGTGGAAAAGGAACTCCTCTGGGAACCCCA
GCAACCTCTCCTCCTCCAGCCCACTCTGTCAATTCGGATGACTACGTGCACATTTCACTCCCCAGGCC
ACAGTCACACCCCCAGGAAGGAAGAGAGAATGGATTCTGCAAGACCATGTCTACACAGACAACCCAT
CTTCTGAATGACAGAGGATCAGAAGAGCCACTGGCAGCAAAGGTTCTGTCACTTAAGTATCTTCCA
GGGTTTTTAGGTGATCTGGCCTCTGAAGAAGATAGTATTGAAAAAGATAAAGAAGAAGCTGCAATATCT
AGAGAACCTTCTGAGATCACCACAGCAGAGGCAGAGCCTGTGGTTCCTCGAGGAGCTTTGACTCCTCC
```



[View online »](#)

TTTTACCGAGACAGTCTCCCAGTTCTCAGCGGAAGACCCACTCGGCAGCCTCCAGTTCTCAGGGCGCC
 AGCGTGAACCCTGAGCCTTTACTCTCCTCCCTGGACAAGCTTGGGCTGACACACCAAAGCAAGCCTTT
 ACTCCATAGACCTGCCCTGCGGAGTGTGATGAAAAGCCTGCGGGAGACAGGGAATGCCAGACTTCT
 TTGGAGACCAGTATCTTCACTCCAGTCTTTGAAAATCCACCTCCGACGAGAGTGGGCTTTGGAAGC
 GGGCAGCTCCCCGATGATCATCTTTTGGAGTGGCATTGCCAAAGACAGCCCATTTTTGTATC
 AGGAAGACTGAGGAGCTGTTAAAGAAAGCAAAGAAACAGAGGAAGATGGTGTGCCCTCTACCTCC
 CCAATGGAAGTGTGGACAGACTGATACAGCAGGAGCAGACGCGCACAGCAAGAGCTGAACAAGTTG
 CCTTTACCCAGCAAGTCTGTCGACTGGACCCACTTTGGAGGCTCTCTCTTTCAGATGAGATCCGCACC
 CTTCCGAGACCAGTTGCTTTTACTGCACAACCAGTTACTCTATGAGCGTTTTAAGAGGCAGCAGATGCC
 CTTCCGGAACAGGCGGCTCCTCCGCAAGGTGATCAAAGCAGCAGCTCTGGAGGAACATAATGCTGCCATG
 AAAGATCAGTTGAAGTTACAAGAGAAGGACATCCAGATGTGGAAGTTAGTCTGCAGAAAGAACAAGCT
 AGATAAATCAGCTCCAGGAGCAGCGTGACACTATGGTAACCAAGCTCCACAGCCAGATCAGACAGCTG
 CAGCATGACCGAGAGGAATTCTACAACCAGAGCCAGGAATTACAGACGAAGCTGGAGGACTGCAGGAAC
 ATGATTGCGGAGTGGGATAGAAGTGAAGAAGGCCAACACAAGGTGTGTCACTGAGCTGCTGCTC
 AGTCAGGTTTCCAAAAGCTCTCAAACAGTGTGTCGGTCCAGCAGCAGATGGAGTTCTTGAACAGGCAG
 CTGTTGGTTCTTGGGGAGGTCAACGAGCTCTATTTGGAACAACCTGAGAACAAGCACTCAGATACCACA
 AAGGAAGTAGAAATGATGAAAGCCGCTATCGGAAAGAGCTAGAAAAAACAAGGCCATGTTCTCCAG
 CAGACTCAGAGGCTTGATACCTCCAAAAACGGATTTTGGAACTGGAATCTCACCTGGCCAGAAAGAC
 CACCTTCTTTTGGAACAGAAAGAAATATCTAGAGGATGTCAAACCTCCAGGCAAGAGGACAGCTGCAGGCC
 GCAGAGAGCAGGTATGAGGCTCAGAAAAGGATAACCCAGGTGTTTGAATTGGAGATCTTAGATTTATAT
 GGCAGGTTGGAGAAAGATGGCCTCCTGAAAAAAGTGAAGAAGAAAAAGCAGAAGCAGCTGAAGCAGCA
 GAAGAAAGGCTTTCTTACAGGCTTGACTGTTGTAATGACGGGTGCTCAGATTCATGGTAGGGCACAAT
 GAAGAGGCATCTGGCCACAACGCTGAGACCAAGACCCCAAGGCCAGCAGCGCCGGGCGAGTAGTGA
 AGCAGAGGTGGTGGAGGACAGCAGCAGCAGCAGCAGCAGCAGCAGCAGCAGCAGCAGCAGCAGCAGCAG
 AGGGCAGGCCATTACAGCAGTGGTGGGAGCAGCTATGGGAGAAGCGTCTGCCAGCATCCCCACCACT
 GTGGGCTCACTTCCAGTTCAAAAAGCTTCTGGGTATGAAGGCTCGAGAGTTATTTGTAATAAGAGC
 GAGAGCCAGTGTGATGAGGACGGCATGACCAGTAGCCTTCTGAGAGCCTAAAGACAGAAGTGGGCAAA
 GACTTGGGTGGAGCCAAAGATTCCCTGAACCTAGATGGCCCTCACCCGTCTCCCCGACCCCGGAC
 AGTGTGGACAGCTACATATCATGGACTACAATGAGACTCATCATGAACACAGC
 ACGCGTACGCGGCCGCTCGAGCAGAAACTCATCTCAGAAGAGGATCTGGCAGCAATGATATCTGGAT
 TACAAGGATGACGACGATAAGGTTTAAACGGCCGCGC

Protein Sequence:

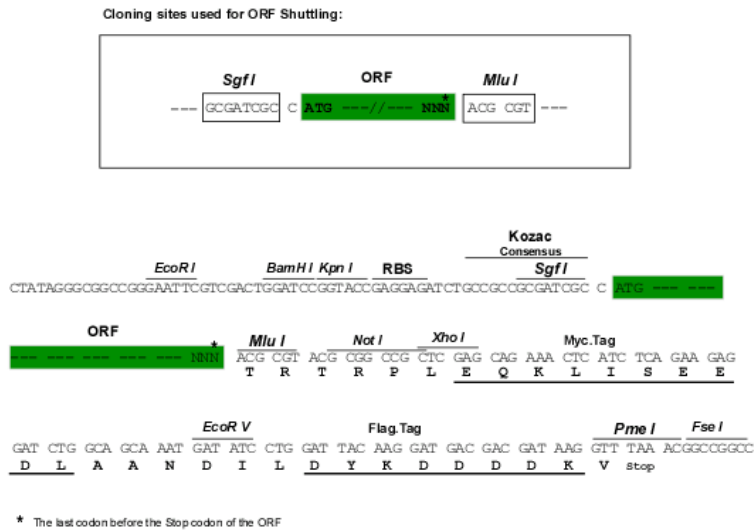
>Peptide sequence encoded by RC213332
 Blue=ORF Red=Cloning site Green=Tag(s)

MAQQANVGELLAML DSPMLGVRDDVTAVFKENLNSDRGPMLVNTLVDYYLETSSQPALHILTTLQEPHD
 KHLLDRINEYVGKAATRLSILSLLGHVIRLQPSWKHKL SQAPLLPSLLKCLKMDTDVVVL TTGVLVLIT
 MLPMPQPQSGKQHLLDFDFIFGRLLSSWCLKKPGHVAEVYLVHLHASVYALFHRLYGMYP CNFVSFLRSHY
 SMKENLETFEEVVKPMEHVRIHPPELVGSKDHELDPRRWKRLTHDVVIECAKISLDPT EASYEDGYS
 VSHQISARFPHRSADVTTSPYADTQNSYGCATSTPYSTRMLLNMPGQLPQTLSSPSTRLITEPPQAT
 LWSPSMVCGMTTPPTSPGNVPPDL SHPYSKVFGTTAGGKGTPLGTPATSPPPAPLCHSDDYVHISLPQA
 TVTPPRKEERMDSARPCLHRQHLLNDRGSEPPGSKGSVTLSDLPGFLGDLASEEDSIEKDKEEAAS
 RELSEITTAEAEPVVPRGGFDSPFYRDSLPGSQRKTHSAASSSQGASVNPPELHSSLDKLGPDPKQAF
 TPIDLPGSADESPAGDRECQTSLET SIFTPSPCKIPPPTRVGFSGQPPPYDHLFEVALPKTAHFFVI
 RKTEELLKKAKGNTEEDGVPSTSPMEVLDRLIQGADAHSKELNKLPLPSKSDVWTHFGGSPSDEIRT
 LRDQLLLLHNQLLYERFKRQHALRNRRLLRKVIKAAALEEHNAAMKDQLKLEKDIQMWKVS LQKEQA
 RYNLQEQQRDTMVTKLHSQIRQLQHDREEFYNQSQELQTKLED CRNMIAELRIELKKANNKVCHTELLL
 SQVSQKLSNSESVQQMEFLNRQLLVLEVNELYLEQLQNKHSDTTKEVEMMKAAYRKELEKNRSHVLQ
 QTQRDTSQKRIELESHLAKKDHLLEQKYLEVVKLQARGQLQAAESRYEAQKRITQVFELEILDLY
 GRLEKDGLLKKLEEEKAEAAEAERLSYRLDCCNDGCSDSMVGHNEEASGHNGETKTPRPSARGSSG
 SRGGGSSSSSELSTPEKPPHQ RAGPFSSRWETTMGEASASIPPTVGSPLSSKSF LGMKARELFRNKS
 ESQCEDGMTSSLSESLKTELKDLGVEAKIPLNLDGPHSPPTPDSVQLHIMDYNETHHEHS
 TRTRPLEQKLI SEEDLAANDILDYKDDDDKV

Chromatograms: https://cdn.origene.com/chromatograms/mk6168_h02.zip

Restriction Sites: Sgfl-MluI

Cloning Scheme:



ACCN: NM_000368

ORF Size: 3504 bp

OTI Disclaimer: Due to the inherent nature of this plasmid, standard methods to replicate additional amounts of DNA in E. coli are highly likely to result in mutations and/or rearrangements. Therefore, OriGene does not guarantee the capability to replicate this plasmid DNA. Additional amounts of DNA can be purchased from OriGene with batch-specific, full-sequence verification at a reduced cost. Please contact our customer care team at custsupport@origene.com or by calling 301.340.3188 option 3 for pricing and delivery.

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. [More info](#)

OTI Annotation: This clone was engineered to express the complete ORF with an expression tag. Expression varies depending on the nature of the gene.

Components: 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).

Reconstitution Method:

1. Centrifuge at 5,000xg for 5min.
2. Carefully open the tube and add 100ul of sterile water to dissolve the DNA.
3. Close the tube and incubate for 10 minutes at room temperature.
4. Briefly vortex the tube and then do a quick spin (less than 5000xg) to concentrate the liquid at the bottom.
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.

RefSeq Size: 8617 bp

RefSeq ORF: 3495 bp

Locus ID: 7248

UniProt ID: [Q92574](#)

Cytogenetics: 9q34.13

Domains: Hamartin

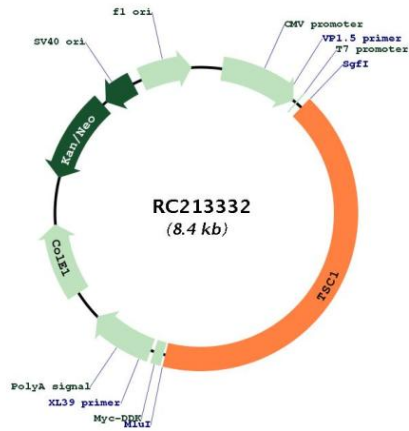
Protein Pathways: Insulin signaling pathway, mTOR signaling pathway

MW: 130.3 kDa

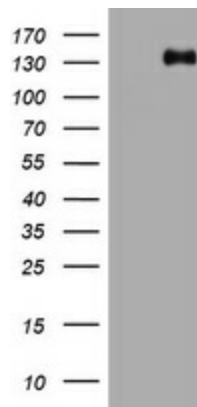
Gene Summary:

This gene is a tumor suppressor gene that encodes the growth inhibitory protein hamartin. The encoded protein interacts with and stabilizes the GTPase activating protein tuberin. This hamartin-tuberin complex negatively regulates mammalian target of rapamycin complex 1 (mTORC1) signalling which is a major regulator of anabolic cell growth. This protein also functions as a co-chaperone for Hsp90 that inhibits its ATPase activity. This protein functions as a facilitator of Hsp90-mediated folding of kinase and non-kinase clients, including Tsc2 and thereby preventing their ubiquitination and proteasomal degradation. Mutations in this gene have been associated with tuberous sclerosis. [provided by RefSeq, Apr 2018]

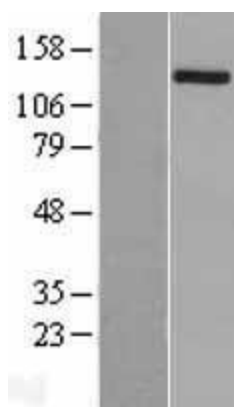
Product images:



Circular map for RC213332



HEK293T cells were transfected with the pCMV6-ENTRY control (Cat# [PS100001], Left lane) or pCMV6-ENTRY TSC1 (Cat# RC213332, Right lane) cDNA for 48 hrs and lysed. Equivalent amounts of cell lysates (5 ug per lane) were separated by SDS-PAGE and immunoblotted with anti-TSC1 (Cat# [TA801949]). Positive lysates [LY400132] (100ug) and [LC400132] (20ug) can be purchased separately from OriGene.



Western blot validation of overexpression lysate (Cat# [LY400132]) using anti-DDK antibody (Cat# [TA50011-100]). Left: Cell lysates from untransfected HEK293T cells; Right: Cell lysates from HEK293T cells transfected with RC213332 using transfection reagent MegaTran 2.0 (Cat# [TT210002]).